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THE AEROPLANE—JULY 4, 1928.

THE R.A.F. DISPLAY

THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

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JUL 24 1928
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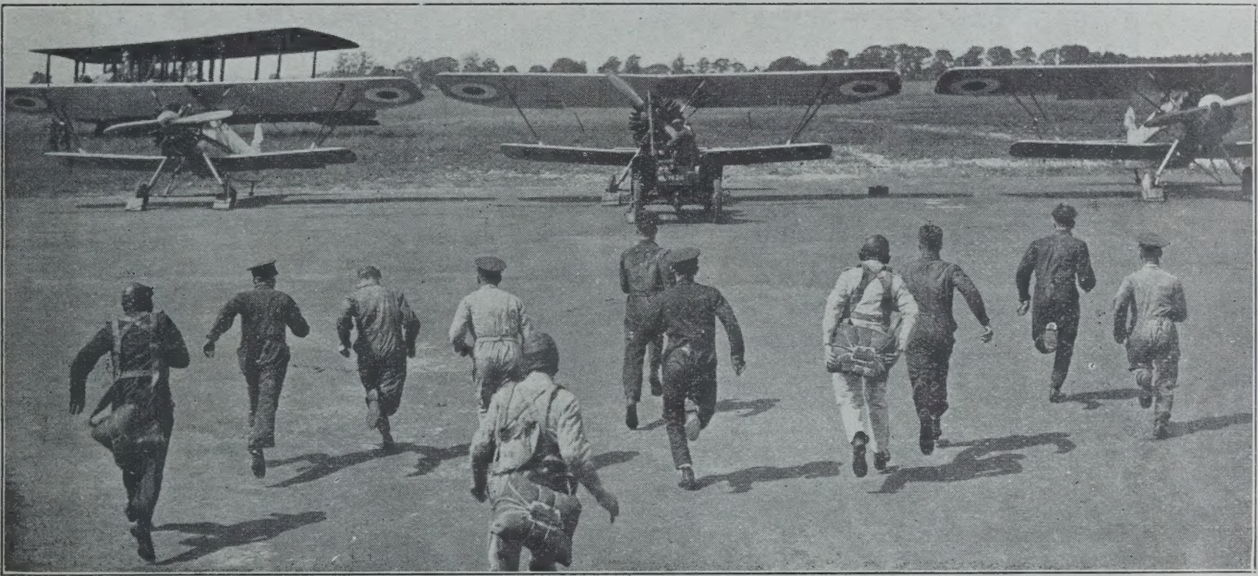
"AND THERE WAS MOUNTING IN HOT HASTE."—*(Byron.)*



THE BATTLE FLIGHT COMPETITION.—Pilots and mechanics of No. 32 (Fighter) Squadron (Armstrong Siddeley Siskins, Jaguar Engines) dashing for the machines after the alarm signal has been given for the three fighter squadrons in the Battle Flight Competition to attack the enemy bombers.

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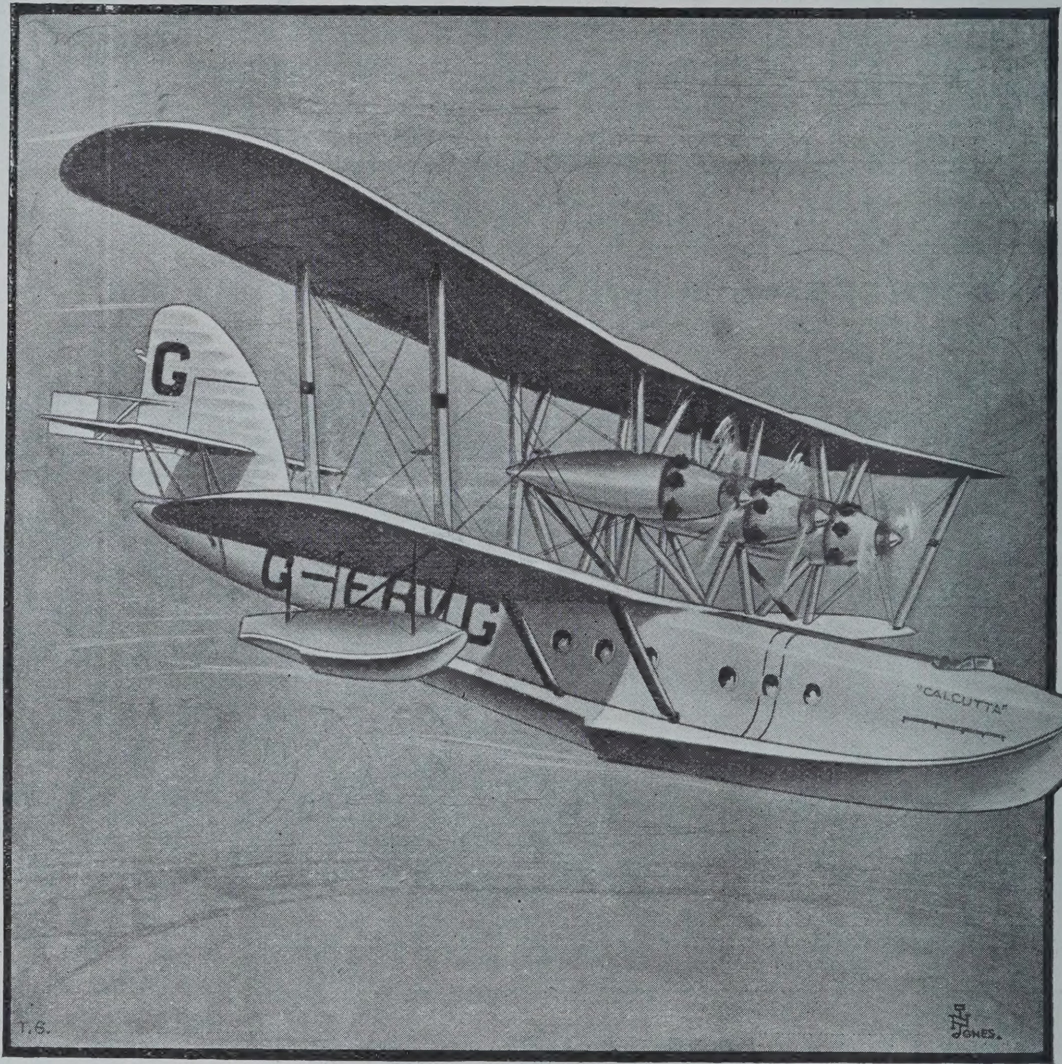

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THE AEROPLANE

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ON THE R.A.F. PAGEANT.

Estimates of the number of people who saw the R.A.F. Display at Hendon on Saturday, June 30, vary between 75,000 and 175,000. And people still call it the Pageant,—for such it is, much more than a mere Display.

If one takes in what the Germans call "hedge guests," or what an Australian correspondent writing of an air display there called "the inhabitants of Scotchman's Hill outside the aerodrome," probably the figure was well up in the direction of 200,000. Anyhow, by midday a member of the Committee told one that there were already 1,000 more cars in the enclosure, thanks to the rearrangement of the parking space, than there had been at any previous Pageant. By 14.30 hours the gates had had to be shut to cars, and late arrivals had to leave their cars outside in the emergency parking spaces and walk to the aerodrome.

When one got there oneself at 11.15 hours the Editorial Talbot could only get into a fourth row up at the top of the hill. The parking was excellently done, and the airmen of the R.A.F. who were in charge of the job were as courteous and helpful as London traffic police,—with whom one has no quarrel.

Judging by the vast crowds gathered to see a purely warlike Display without any civil interest in it whatever, and by the enthusiastic welcome given to His Majesty the King when he arrived, there is still some difficulty in believing that we are a Pacifist, Communist and Republican Nation. And incidentally, judging by what one has seen of the Oxford and Cambridge University Air Squadrons, which may be taken as very fair average samples of the youth of Great Britain to-day, we shall have no more difficulty in raising a thoroughly enthusiastic Army and Air Force for the next war than we had in 1914-15. Anyhow, the tens or hundreds of thousands of John Citizens and Jane Citizens (now that Jane has the Vote down to the tenderest age) must have been convinced that the Air Ministry is giving him and her very good value for money.

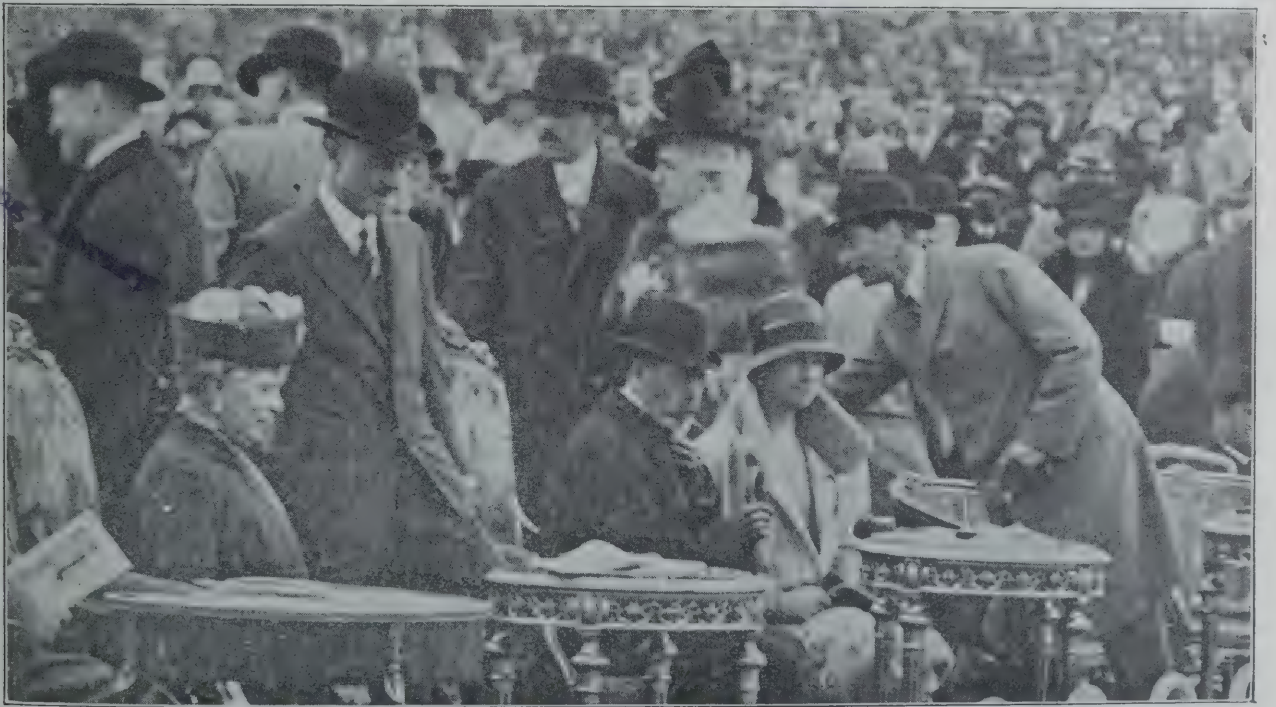
A HINT TO THE AIR LEAGUE.

The poor misguided Air League may go on for ever with its silly little bleat about our having an Air Force that does not compare with those of foreign nations, and about having an Air Ministry which does not know its job, and about having an Air Staff which is incapable of organising or controlling or commanding an adequate Air Force, without doing either good or harm. But people who know a heap more about air war and aircraft than does anybody with any influence in the Air League (namely, those who fought us in the last War, and those who were our Allies therein) simply gasped in astonishment not only at the mere flying of our pilots, but at the workmanship and manœuvrability of our machines, and at the marvellous Staff work which handled those masses of machines and men in such a limited space with such perfect precision.

If only the Air League would have the sense to stand up and shout that we have the finest Air Force in the World, with the finest Staff to handle it, and with the finest Air Ministry behind it, and that John and Jane Citizen ought to pawn the contents of the Plain Van in order to make the Air Force three times as big and three times as strong, the Air League might manage to touch the hearts of the Taxpayer and scoop in some cash for itself. But the Great British Public is not going to support an organisation which devotes its money and energy to crying stinking fish,—or perhaps, to use a more aeronautical simile, over-high game. Meantime the Air Force is doing very well, thank you, in spite of the Air League, as everybody who went to Hendon could see for themselves.

The Pre-Lunch Programme.

The Programme was divided into two sections. The first consisted of events indicated by letters, which happened before 15.00 hours, when the King arrived. The afternoon events were indicated by numbers.



THE ROYAL PARTY AT THE R.A.F. DISPLAY.—Their Majesties the King and Queen and H.R.H. the Duke of York with their suite at Hendon on June 30. Sir Samuel Hoare is seen standing by the Queen, and the Lady Maud Hoare is sitting beside the King.

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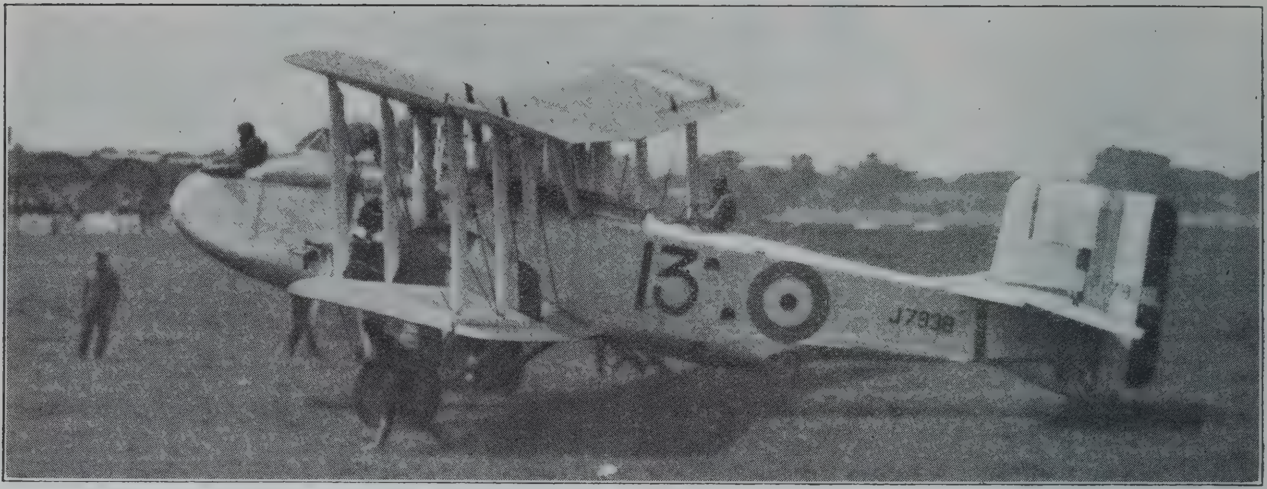


A TWIN-ENGINED DAY-BOMBER.—The Boulton and Paul Sidestrand (two Bristol Jupiters).—(*"Aeroplane" photograph.*)

These lettered events which follow hereafter are described by Mrs. C. M. McAlery, who besides being the literary and athletic critic of THE AEROPLANE is in charge of the R.A.F. section of this paper. She writes as follows :—

Before the lettered events began the Sassoon Trophy, presented by Sir Philip Sassoon, C.B.E., C.M.G., M.P., Under-Secretary of State for Air, for annual competition between a representative of each Squadron in the Fighting Area, was presented to this year's winner, Flg. Off. H. T. Andrews, No. 41 (Fighter) Squadron. The Siddeley Siskin III.A (Jaguar engine), in which Mr. Andrews won the race on May 26, was exhibited in the New and Experimental Machine Park, where it sat in a corner and looked contemptuously at the variegated but inexperienced warriors all round it.

The first lettered event was the R.A.F. Reserve of Officers' Race. This race was over a course of approximately 14 miles, and was open to one officer from each of the Training Centres of Annual Flying Training of officers on the Reserve of Air Force Officers. The machines, Avro training machines with Lynx engines, took off simultaneously, and the result was :—

(1) Flg. Off. C. E. M. Pickthorn, M.C., the North Sea Aerial and General Transport Ltd., Leeds.

(2) Flt. Lt. H. Bligh, Sir W. G. Armstrong Whitworth Aircraft Ltd., Coventry.

(3) Flg. Off. F. J. Brunton, the Bristol Aeroplane Co. Ltd., Leeds. (Winner's time 8 mins. 52 secs.).

Also-rans : Flg. Off. G. F. Court, The De Havilland Aircraft Co. Ltd., London, and Flg. Off. R. P. Mollard, Wm. Beardmore and Co. Ltd., Glasgow.

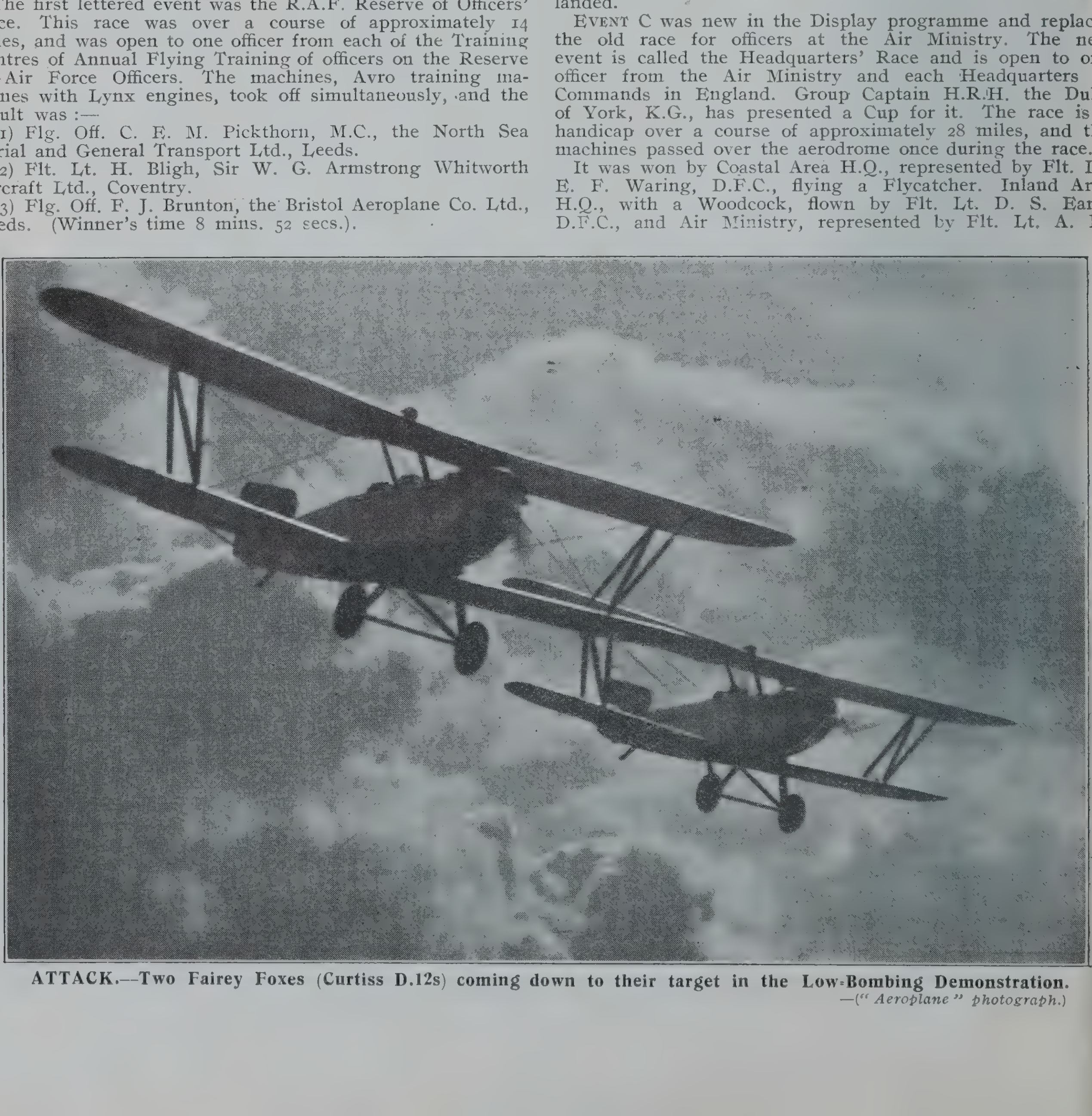
EVENT B was an exhibition of individual aerobatics by two pilots of No. 41 (Fighter) Squadron on Siskin III.As with Jaguar engines. The pilots were Flt. Lt. F. K. Damant, D.F.C., and Flg. Off. C. S. Staniland. The two pilots manœuvred separately, one beginning a manœuvre as soon as the other had finished.

These aerobatics were as pretty as anything in the whole display and gave a vivid illustration of part of the daily work of a keen and efficient Fighter Squadron.

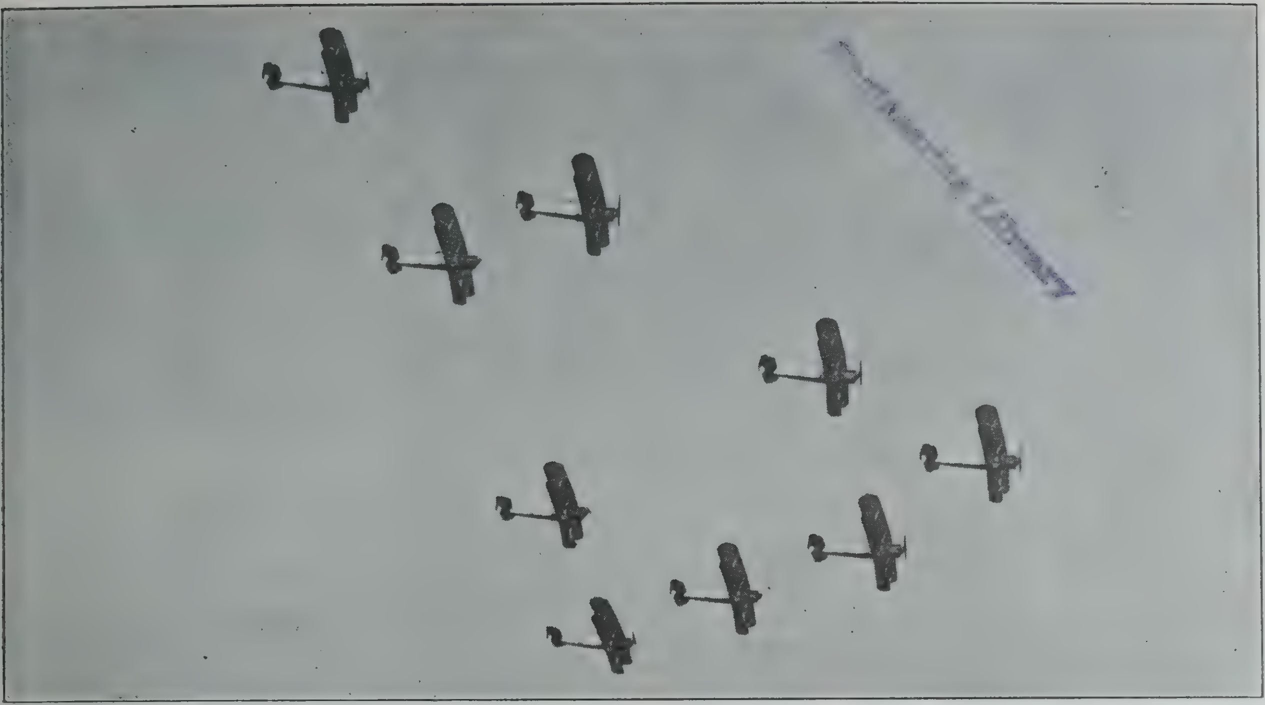
The first of the two heavy rainstorms which did their best to spoil the Display broke just before these machines landed.

EVENT C was new in the Display programme and replaces the old race for officers at the Air Ministry. The new event is called the Headquarters' Race and is open to one officer from the Air Ministry and each Headquarters of Commands in England. Group Captain H.R.H. the Duke of York, K.G., has presented a Cup for it. The race is a handicap over a course of approximately 28 miles, and the machines passed over the aerodrome once during the race.

It was won by Coastal Area H.Q., represented by Flt. Lt. E. F. Waring, D.F.C., flying a Flycatcher. Inland Area H.Q., with a Woodcock, flown by Flt. Lt. D. S. Earp, D.F.C., and Air Ministry, represented by Flt. Lt. A. H.



ATTACK.—Two Fairey Foxes (Curtiss D.12s) coming down to their target in the Low-Bombing Demonstration.—(*"Aeroplane" photograph.*)



SQUADRON FORMATION.—Hawker Horsleys (Rolls-Royce Condors) of No. 11 (Bombing) Squadron, Netheravon, in Squadron Formation in the Wing Drill by three Day-Bombing Squadrons at the R.A.F. Display on June 30.—(*"Aeroplane" photograph.*)

Orlebar, A.F.C., in a Siskin III, tied for second place. Air Defence of Great Britain represented by Sq. Ldr. A. Gray, M.C., on a Gamecock, was third. H.Q. Wessex Bombing Area was represented by Flt. Lt. H. F. V. Battle in a Fox, and Fighting Area H.Q. was represented by Flg. Off. R. T. Taaffe in a Moth.

Event D was a demonstration of slow flying with a Moth fitted with slotted wings. The pilot was Flt. Lt. D. S. Don, of No. 24 (Communication) Squadron. This was very interesting to those who had not seen similar demonstrations at other flying meetings throughout the country, but one hopes it will not be used permanently to replace the old crazy-flying on a comic machine which was such a joyous feature of previous Displays.

Flt. Lt. Don gave a splendid demonstration of what can and should not be done in the air. Whether his exhibition will induce confidence in R.A.F. Communications, or a lack of it, on the part of those whose pleasure and/or duty compels them to use these communications remains to be seen.

Event E was a new type of Air Combat in that the battle was supposed to be fought between an expert fighting air pilot and a novice. Flt. Lt. S. T. B. Cripps, D.F.C., and Flg. Off. J. C. H. Tavendale, both in Siskin III.As, and both of No. 32 (Fighter) Squadron, took the part of the expert and the novice and chased each other round the sky in a most convincing manner.

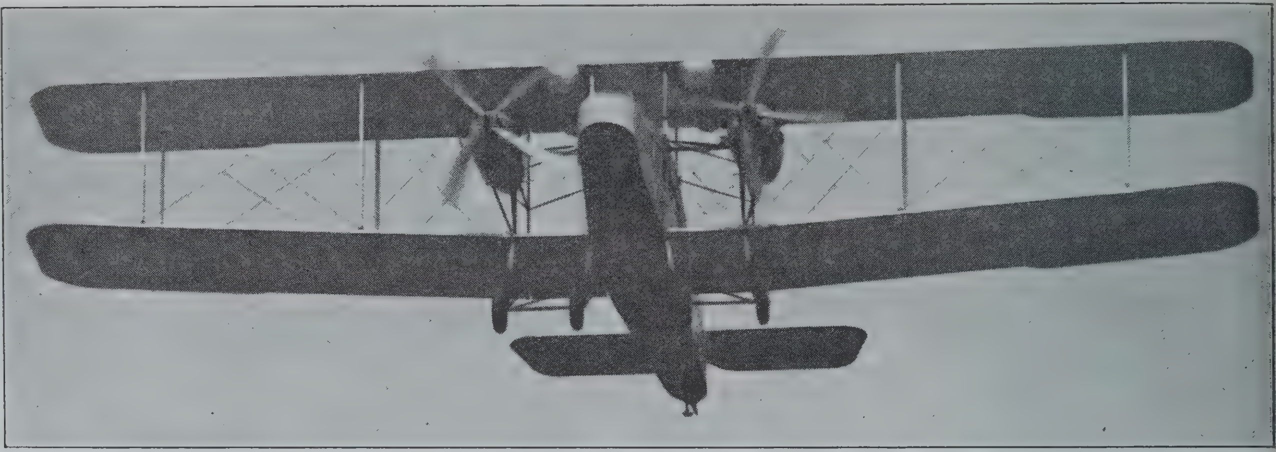
The combat was waged for a good ten minutes before the novice suffered the fate of most novices on such occasions, but only jammed machine-guns could account for the delay in his execution by the expert.

Event F was an altitude race. The start of this was delayed for a few minutes so that what the broadcast announcer described as "low clouds," but many of the spectators called a "ruddy great storm," blew over. Before the rain had stopped the machines were well out of sight.

This race was in the nature of a competition between representatives of four Fighter Squadrons. The machines started simultaneously and climbed as fast as possible for 15 minutes. Each machine carried a sealed barograph to record the rate of climb and the maximum height reached. The pilots wore electrically-heated clothing and were provided with oxygen.

The winner was Plt. Off. T. J. Arbuthnot, of No. 41 (Fighter) Squadron, flying a Siskin III.A (Supercharged Jaguar engine), who reached a height of 19,500 ft. The second was Flg. Off. H. W. Charnock, of No. 32 (Fighter) Squadron, on a Siskin III.A (Unsupercharged Jaguar engine), who got to 16,000 ft. Flg. Off. H. G. Loch, of No. 1 (Fighter) Squadron, Siskin III.A (Supercharged Jaguar en-

SOME OF THE TEN THOUSAND CARS.—The lower end of the car-park in the ten-shilling enclosure. Two flights of Siskins are seen getting-off.—(*"Aeroplane" photograph.*)



TROOP TRANSPORT.—The Handley Page Hinaidi (two Bristol Jupiters).—(*" Aeroplane " photograph.*)

gine), was third, with 14,000 ft. Plt. Off. J. W. Gillan, of No. 111 (Fighter) Squadron, on a Siskin III.A (Supercharged Jaguar engine), was fourth.

The disparity in the heights reached was due to the patches of heavy cloud.

EVENT G was a Demonstration Shoot. This was the Army Co-operation contribution towards the programme, and as a popular spectacle was not really so successful as the Message-Picking-Up competition of previous years. The spectators only see the target, represented by a large dummy gun with " shell-bursts " appearing all round it, and the machine, a Bristol Fighter from the R.A.F. School of Army Co-operation, Old Sarum, sitting over the target.

The pilot's Morse-code messages were broadcast by the loud-speakers on the ground, followed by an explanation of each message. For those who took the trouble to read the programme carefully and listen to the messages this event was interesting if not exciting

EVENT H was an exhibition of individual aerobatics on Avro 504N machines with Lynx engines by two pilots from No. 2 Flying Training School, Digby. The machines were painted scarlet on top so that the manœuvres would be more clearly demonstrated. The aerobatics were done simultaneously by the two machines over each end of the aerodrome until the end, when they combined with hair-raising effect.

The pilots were Flg. Off. C. H. G. Bremridge and Flg. Off. G. E. Campbell, D.F.M. They executed all the various stunts possible to a training machine, which was of particular interest to those hundreds of ex-R.A.F. people there who had flown similar machines in 1918, and are watching with a critical or envious eye to see how the present generation does it.—C. M. MCA.

The Afternoon Programme.

[*Here one takes over again.*—C. G. G.]

The first of the afternoon events was an exhibition of drill in the air by three Day Bombing Squadrons, No. 11 Netheravon, under Sq. Ldr. P. H. Cummings, D.F.C., on Hawker Horsleys (Rolls-Royce Condors), No. 12 Andover, under Sq. Ldr. T. E. Salt, A.F.C., on Fairey Foxes (Curtiss D.12s), and No. 207 Eastchurch, under Sq. Ldr. J. B. Graham, M.C., A.F.C., on Fairey III.Fs (Napier Lions).

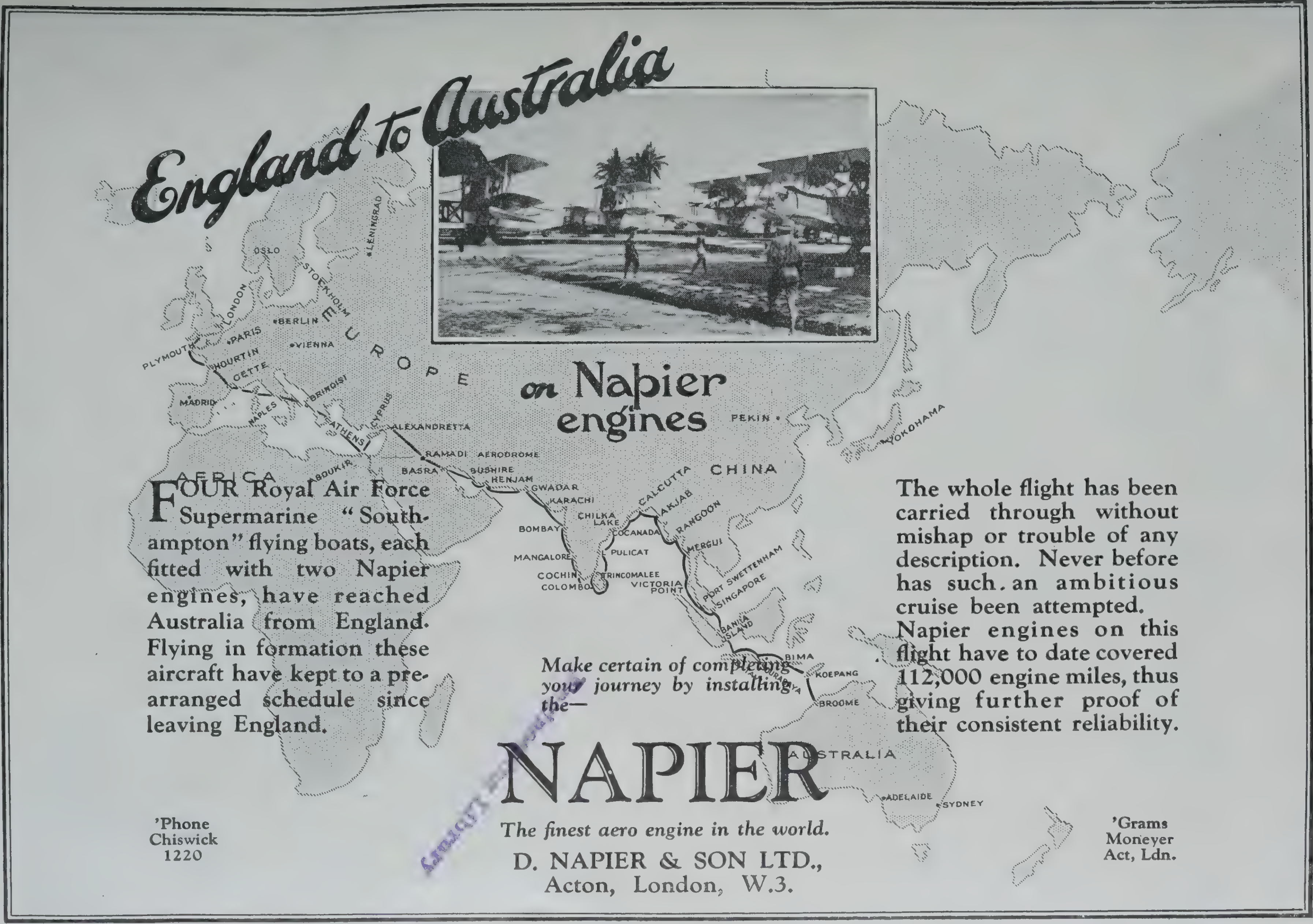
This drill has been substituted for the mass-formation drill of previous years and is a distinct improvement on it. In previous years the masses of aeroplanes had to be left time to turn outside the aerodrome, with the result that there were long minutes during which there was nothing happening over the aerodrome itself. By the new arranegment each squadron did its drill independently so that there was never more than a minute or so in which one formation or the other was away from the aerodrome.

In spite of a very gusty wind the formations were beautiful. The squadrons flew over in regular squadron formation with three flights in a Vee forming a kind of massed Vee formation; in flights in line ahead, each flight in a Vee behind the leading flight; in flights in line abreast, each flight in line beside the leading flight; and in squadron Vee with the leading flight in its own Vee formation and the other flights extending the Vee on each side. Every manœuvre was done with absolute accuracy and the timing of the three squadrons in relation to each other was perfect.

EVENT NO. 2 was a demonstration of attack by machine-gun fire and bombs on a column of alleged enemy transport. Five R.A.F. transport vehicles lumbered across the aerodrome flying yellow flags with black crosses on them,—this flag presumably being selected because it does not belong to any known nation so that even Communistic Members of Parliament might not be offended.

No. 25 (Fighter) Squadron, Hawkinge, on Gloster Grebes (Armstrong-Siddeley Jaguars) under Sq. Ldr. W. H. Park M.C., D.F.C., dived in line on the line of transport and sho

DAY BOMBERS.—Hawker Horsleys (Rolls-Royce Condors) of No. 11 (Bombing) Squadron, Netheravon, commanded by Sq. Ldr. P. H. Cummings, D.F.C., flying over four omnibus loads of R.A.F. Aircraft Apprentices from Halton, in the Drill by Day-Bombing Squadrons. (*" Aeroplane " photograph.*)



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them up without retaliation. One vehicle remained, presumably damaged by machine-gun fire, while the rest ran away. Thereupon the flight broke up and proceeded to make a converging bombing attack on the vehicle, as a change from bombing the dummy tank which has hitherto been part of the programme.

The bombing on Saturday was really very good indeed, but no bomb actually hit the vehicle, for after the performance was over and the superstructure had blown up according to programme, one of the vehicle's cowardly companions came back and towed it out of action.

EVENT NO. 3 was a display of aerobatics by Flt. Lt. R. H. Horniman, Headquarters, R.A.F. Station, Kenley, on a Gloster Gamecock (Bristol Jupiter). The flying was as nearly perfect as might be.

His loops, half rolls, slow rolls, and so forth were beautifully done. And his upward slow roll was particularly clean and neat. He ended by doing a rocket ascent which is really a prolonged zoom following a dive. The pull-up at the bottom of the dive is an excellent way of removing the wings from defective aeroplanes. On an unknown machine it is better done at a height of about 10,000 feet with the accompaniment of a parachute. Flt. Lt. Horniman, knowing his machine, pulled up at about 200 feet or so from the ground where the manœuvre looks very effective.

The only sad thing about this performance is that we have not yet produced in this country a single-seat fighter which after such a pull-up will zoom vertically and do two complete rolls, or rather spiral turns, on its upward path and then fly out at the top. The P.W.8s of the U.S. Army Air Service used to do it four years ago, and it was very pretty to watch. But that was not the fault of Flt. Lt. Horniman.

EVENT NO. 4 was a battle flight competition. In this three squadrons were represented, No. 32, Kenley, on Gloster Gamecocks (Bristol Jupiters) under Sq. Ldr. R. B. Mansell, O.B.E.; No. 1, Tangmere, Armstrong-Whitworth Siskins (Armstrong-Siddeley Jaguars) under Sq. Ldr. E. O. Grenfell, M.C., D.F.C., A.F.C.; and No. 111, Hornchurch, also on Siskins, under Sq. Ldr. K. R. Park, M.C., D.F.C. Each supplied one flight.

The machines were drawn up on the leeward side of the aerodrome with pilots and airmen standing by. The alarm of an enemy attack was given by syren and Véry lights. The pilots and men dashed for the machines (as shown on the frontispiece of THE AEROPLANE this week), and, as quickly as might be, engines were started and the flights took off.

Naturally in such an event the time which each flight takes to get away depends on the time taken by the slowest member of the flight in getting into his machine and getting his engine started. So excellent is the all-round training of the R.A.F. that there were only seconds between the take-off of one flight and another. In fact, standing in the crowd where one could not see the actual operation of starting the machines, the three flights seemed to get off together like a squadron formation.

Once in the air each flight selected an enemy machine and attacked it. The targets in this case were three De Havilland 9as belonging to No. 605 (County of Warwick) (Bombing) Squadron, Castle Bromwich, under Sq. Ldr. J. A. C. Wright, A.A.F. Of course no R.A.F. Pageant would be complete without the antiquated Nine-Ack, though the poor dear old things are now reduced to being targets for their descendants. Probably ten years hence we shall still be using them, if only to blow them up as a part of the set piece. At any rate the De Havilland people can pride themselves on the fact that after eleven years the type is still indispensable.

EVENT NO. 5, Evolutions by a Wing of Three Fighter Squadrons, was quite impressive. The squadrons were: No. 19, Duxford, under Sq. Ldr. H. W. G. Jones, M.C.; No. 29, North Weald, under Sq. Ldr. M. L. Taylor, A.F.C.; and No. 56, North Weald, under Sq. Ldr. A. Lees; all on Armstrong Whitworth Siskin III.As. (Armstrong Siddeley Jaguars). The manœuvres were under the command of Wing Cdr. W. Sholto Douglas, D.S.O., M.C., who manœuvred them by word of command from short-wave wireless. It is true that the wireless of the radio apparatus, hanging around like clothes-lines, give the machines rather a Heath Robinson look, but that is the fault of the wireless experts and not of the machines.

Squadrons 19 and 29 flew round the aerodrome while 56 Squadron did certain entertaining manœuvres, such as bursting up into Prince of Wales' Feathers, looping in flights abreast, rolling and half rolling in line and so forth. Finally Squadrons 19 and 29 strung themselves out into a vast circle, on the Here-We-Go-Round-The-Mulberry-Bush principle, while 56 Squadron went off to the South-East of the aerodrome and formed into squadron-in-flights-ahead,—that is to say, each flight in its own Vee following the next ahead. Coming into the aerodrome led by the Wing Commander, the whole Squadron dived through the moving circle formed by the other two Squadrons. The effect was really very impressive.

Unfortunately the photographs only shows the machine as tiny specks, owing to the immense area of sky covered by the circle, but it does give some idea of the performance.

Thereafter the Squadrons re-assembled and landed very neatly in squadron formation.

THREADING THE NEEDLE.—No. 56 (Fighter) Squadron diving in "Flights ahead" through a moving circle made by No. 19 (Fighter) Squadron and No. 29 (Fighter) Squadron. The manœuvre was directed from the air by R./T. and led by Wing Cdr. W. Sholto Douglas, D.S.O., M.C., who is seen low down on the left of the picture. —(*"Aeroplane" photograph.*)

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The telegrams below from Lady Heath, Sqd. Ldr. Hinkler and Capt. Lancaster show the high qualities of the Fairey Metal Airscrew where efficiency coupled with complete reliability are required.

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TELEGRAM.

Bundaberg, 1st March, 1928.

"Many thanks congratulations must congratulate you on Fairey Reed Propellor which is giving superior results in spite of extreme variations heat cold and heavy rain during past eighteen months use including racing and touring."

HINKLER.

TELEGRAM.

Heliopolis, 4th April, 1928

"Did not have to even think of carrying spare propellor on my Avian which is first light aeroplane fly Cape to Cairo your metal one functioned perfectly in even extreme heat hundred and twenty fahrenheit South Sudan, this is third machine I have had it on."

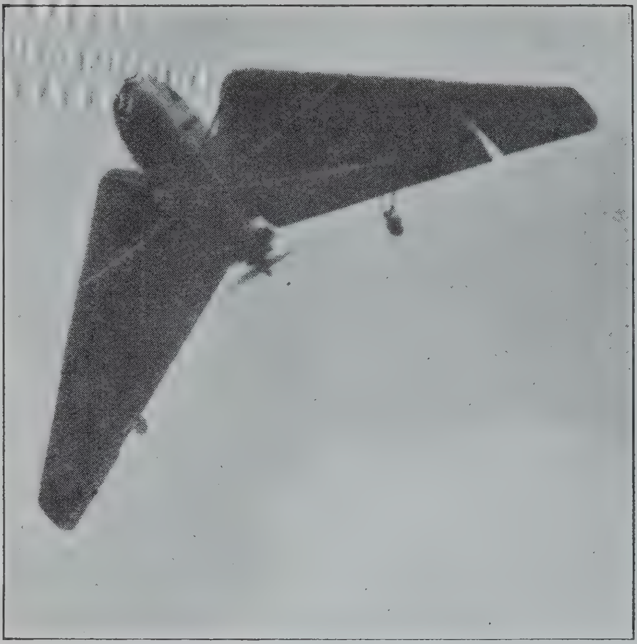
HEATH.

EGRAM

Karachi, 8th December, 1927.

"Metal propellor has given perfect satisfaction under trying conditions wooden propellor would have been useless."

LANCASTER.



WHICH WAY?—The Westland-Hill Pterodactyl (Armstrong Siddeley Genet) in the air. —(*" Aeroplane " photograph.*)

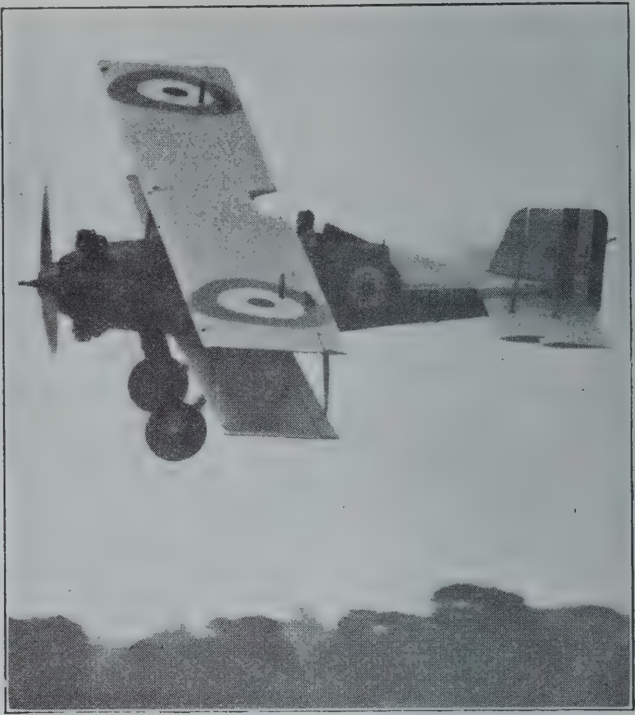
THE PARADE OF NEW THINGS.

Event No. 6 was the Parade and Fly Past of Experimental Types. This is always one of the chief amusements of the Pageant because there is always something funny about some of the machines, and generally somebody has some inane remark to make about even the most serious of them.

The parade was led by Capt. G. T. R. Hill's Pterodactyl built by the Westland Company. This machine is bigger than the one which was at the Pageant two years ago and has an Armstrong Siddeley Genet engine. One gathers that it is not quite so nice to fly as was the old one, chiefly because the rudder arrangement has been completely altered. Still, this difficulty will be got over by further experiments.

Somebody wanted to know what was the big idea in the machine. And the bright answer was that one of the great dangers in air fighting is that of having an enemy sitting on your tail and shooting at you. This machine, having no tail, could not be sat upon.

Of course, lots of people seeing the machine in the new Machine Park, known either as the Amusement Park or the Chamber of Horrors, wanted to know which end of it went first,—the new generation being accustomed only to tractor machines. Actually one believes that this type really has great possibilities for very large size flying-boats, as it is possible to get such marvellous three-point suspension on the water with it.



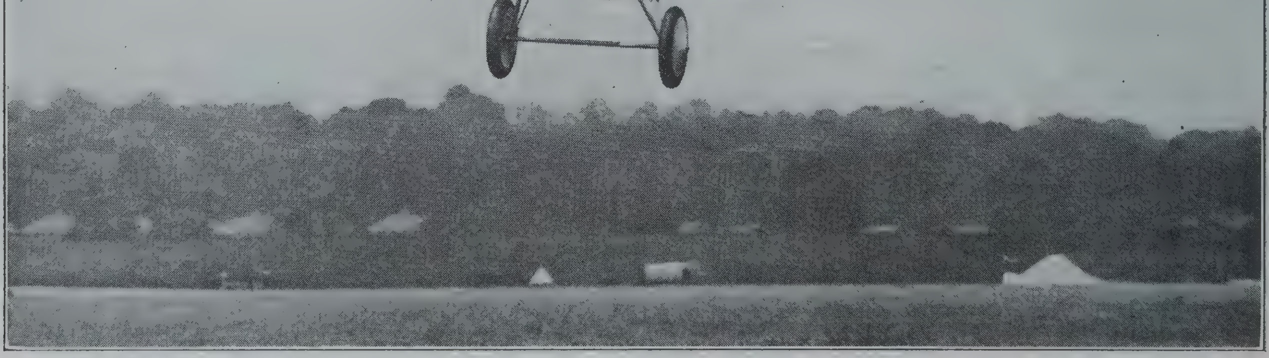
A FIGHTER.—The Boulton and Paul Partridge (Bristol Jupiter) at Hendon. —(*" Aeroplane " photograph.*)

No. 2 was the Boulton and Paul Partridge (Bristol Jupiter), a very neat single-seat fighter with a good performance.

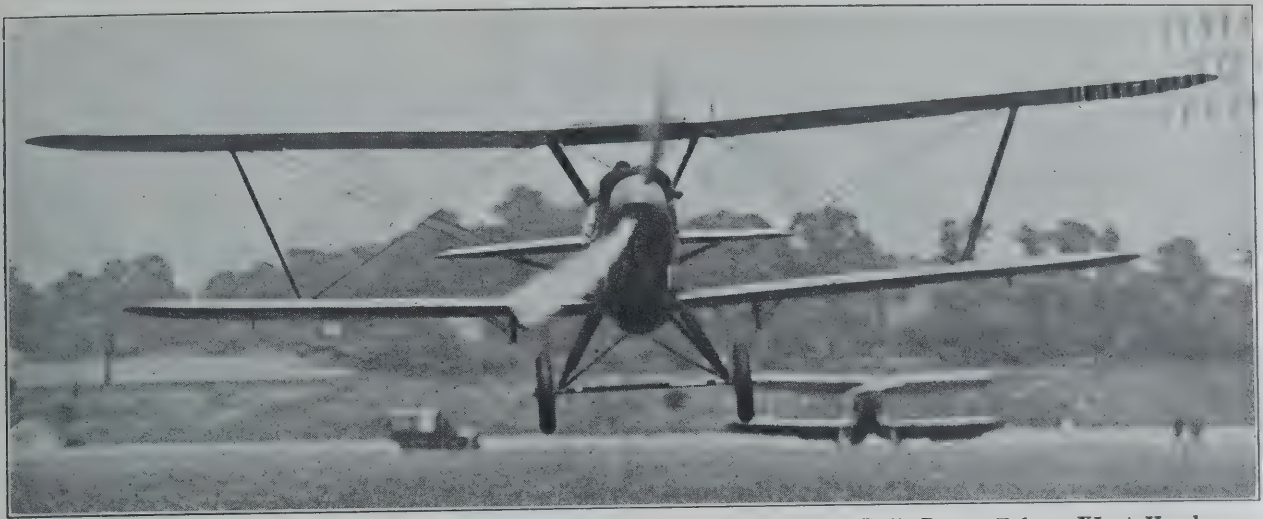
No. 3 was the Hawker Hawfinch (Bristol Jupiter) constructed on the square-tube, or Meccano, principle,—which unfortunately does not show in the finished machine. This machine has a quite astonishing climb compared with those of similar power at present in general service, and one believes that it is particularly good at great heights.

No. 4 was the Bristol Bulldog (Bristol Jupiter). This is a very taking machine and one is told on good authority that it has about the highest speed of any radial-engined machine in the World,—at any rate with ordinary fighting equipment.

No. 5 was the Westland Wizard (Rolls-Royce Falcon XI). From the public point of view this was certainly the star turn of the single-seaters. No official figures have been issued about its performance, but on quite creditable evidence it is said to do well over 210 m.p.h. all out,—and judging by its speed against the wind and its extraordinary climb when rocketed one is quite prepared to believe it. In appearance it has an absurd family resemblance to a Westland Widgeon.



SPEED.—The Westland Wizard (Rolls-Royce Falcon XI), which has a speed of over 210 m.p.hr., getting-off at Hendon. —(*" Aeroplane " photograph.*)



GETTING AWAY WITH IT.—The first of all Fairey Foxes with the new Rolls-Royce Falcon XI at Hendon. —(*"Aeroplane" photograph.*)

No. 6 was the Fairey Fox F.XI. (Rolls-Royce Falcon XI). This machine, so far from being new, was in fact the very first Fairey Fox ever built,—the very one which startled the life out of the Air Ministry's technical experts and certainly advanced British Aviation an extra twelve months within a year.

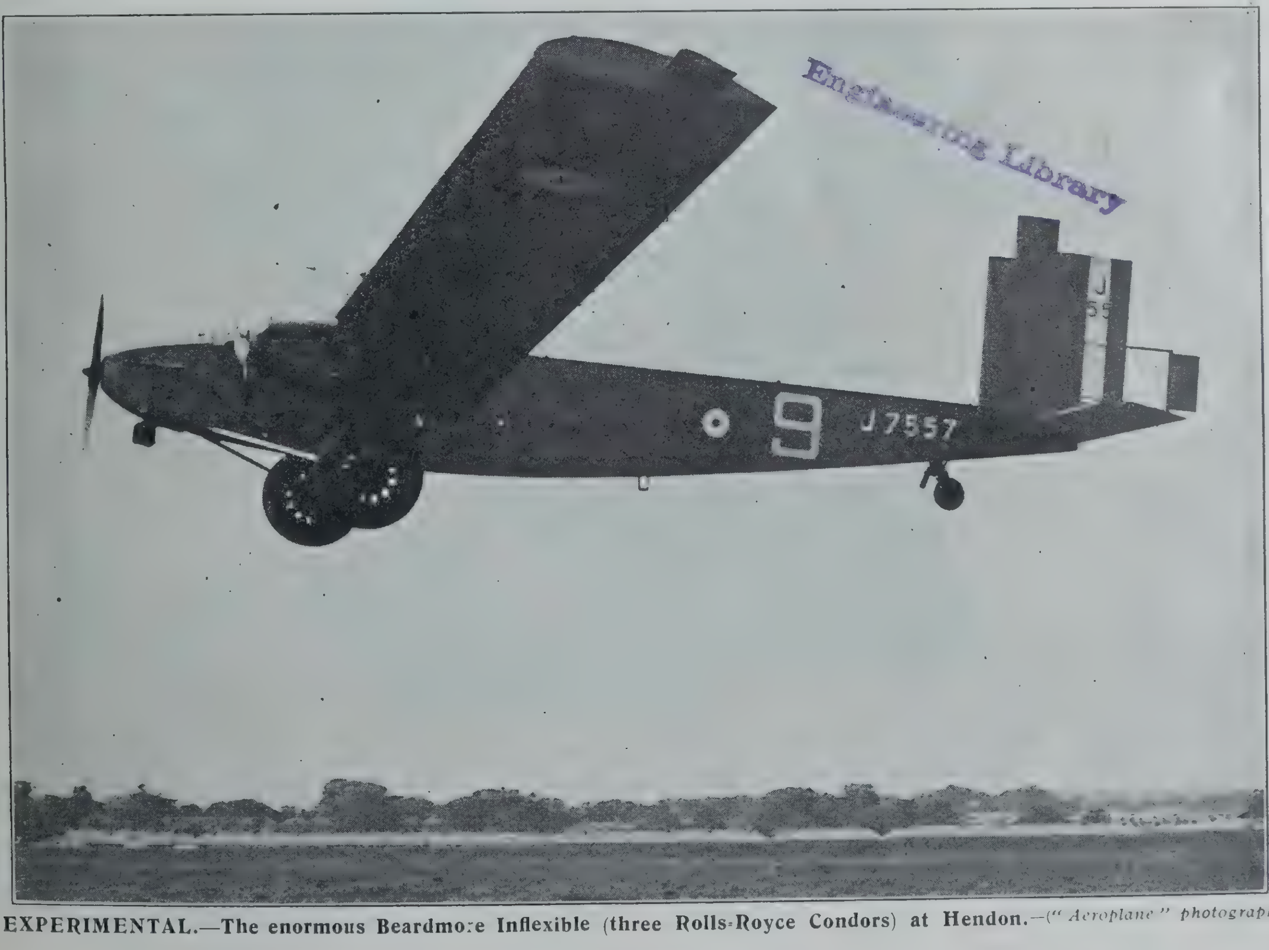
To give credit where credit is due, this machine was frankly built on Curtiss lines by Mr. C. R. Fairey by arrangement with the Curtiss Company. And those who will compare aircraft of to-day with those of two years ago will see the influence that Curtiss fuselage shape has had. With the Falcon XI. the Fox very distinctly beats its performance with the Curtiss D.12. But, which is distinctly an advantage from many points of view, it does not make quite such a joyous noise.

No. 7 was the Halton Light Aeroplane Club's monoplane (Bristol Cherub). This was last year's machine designed and built by members of the Halton Aero Club, turned into a monoplane. It has already appeared at several meetings this year, and just why it should appear as a new machine at the Pageant is not quite clear. But anyhow the Halton boys and their officers who were concerned in the making of it deserve the compliment.

No. 8 was the De Havilland Tiger Moth (De Havilland Gypsy). Unfortunately the Tiger Moth did not fly, because the Hendon Aerodrome is perfectly impossible for the tiny wheels of what is definitely a racing machine. It was a pity, because the Tiger Moth with its 180 h.p. (about) is miles an hour faster than anything else on the aerodrome except the Westland Wizard.

No. 9 was the Beardmore Inflexible (three Rolls-Royce Condors). It is officially classed as an Experimental Giant Bomber. It certainly is an experiment, but what useful service it will ultimately give is at present obscure. Actually the machine is an experiment in the system of all-steel construction invented by Dr. Rohrbach. In the original form as delivered to Beardmores from Germany the designs would have produced a machine which would probably never have got off the ground and would certainly have been impossible to fly if it had done so.

These designs were revised by Mr. Shackleton, now with the Larkin Company in Australia, and thereafter were very considerably modified by Sq. Ldr. de Haga Haig in the light of his vast experience as a test pilot in the R.A.F. The result is that the machine does actually fly. Moreover it definitely belongs among the machines which fly, as opposed



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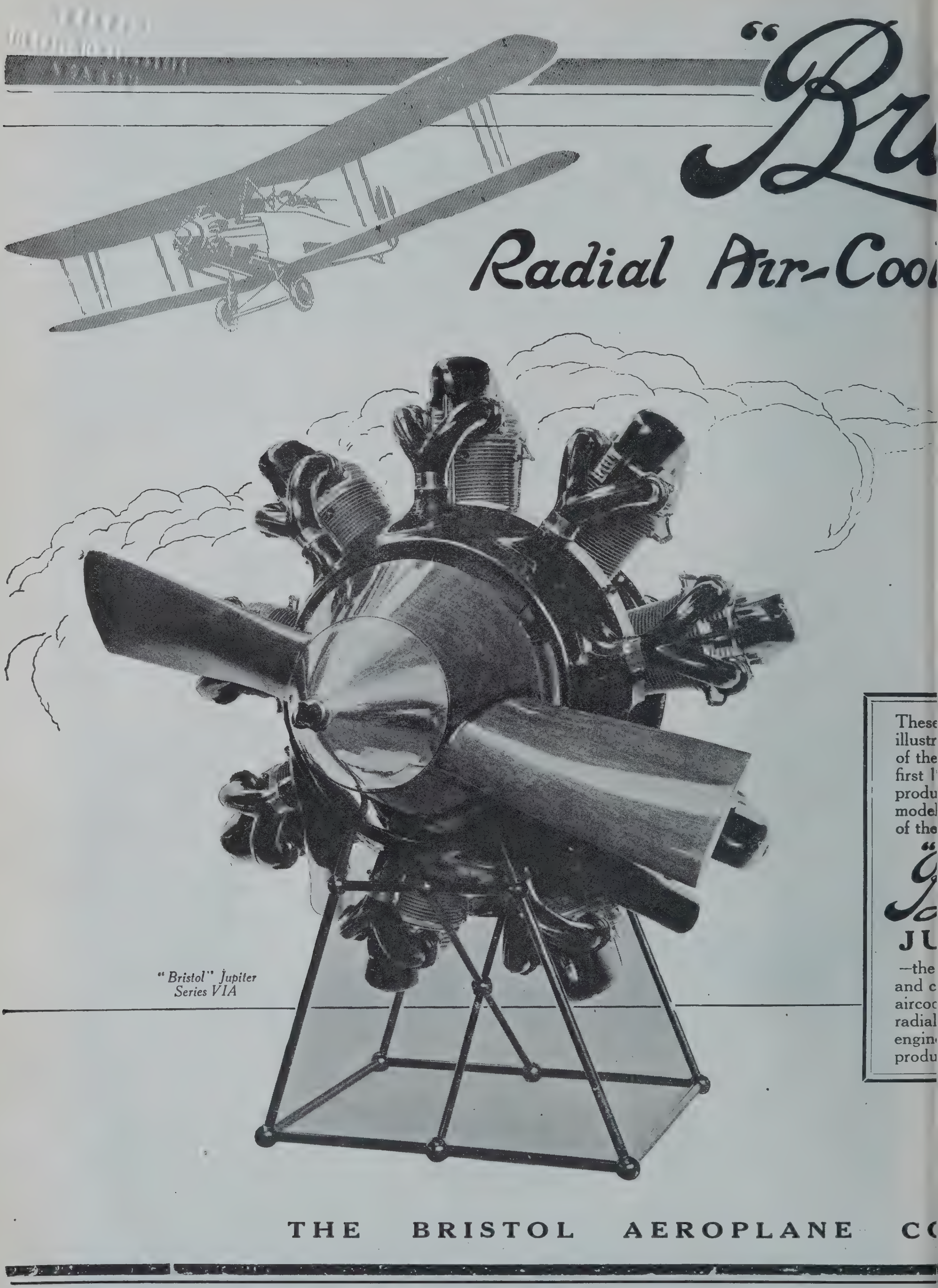
EXPERIMENTAL.—The enormous Beardmore Inflexible (three Rolls-Royce Condors) at Hendon.—(*"Aeroplane" photograph.*)



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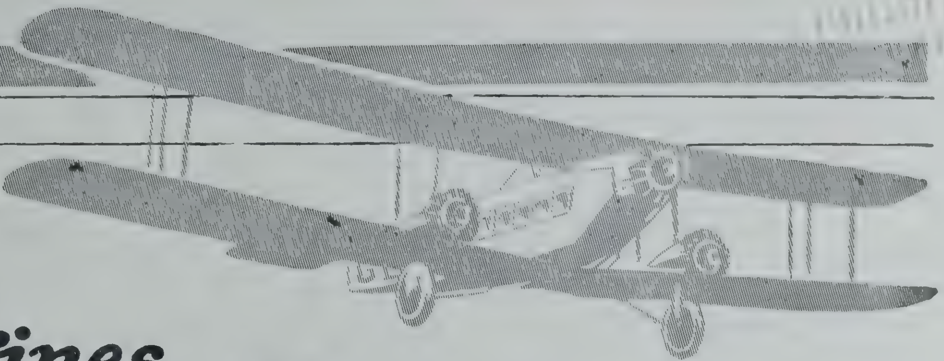

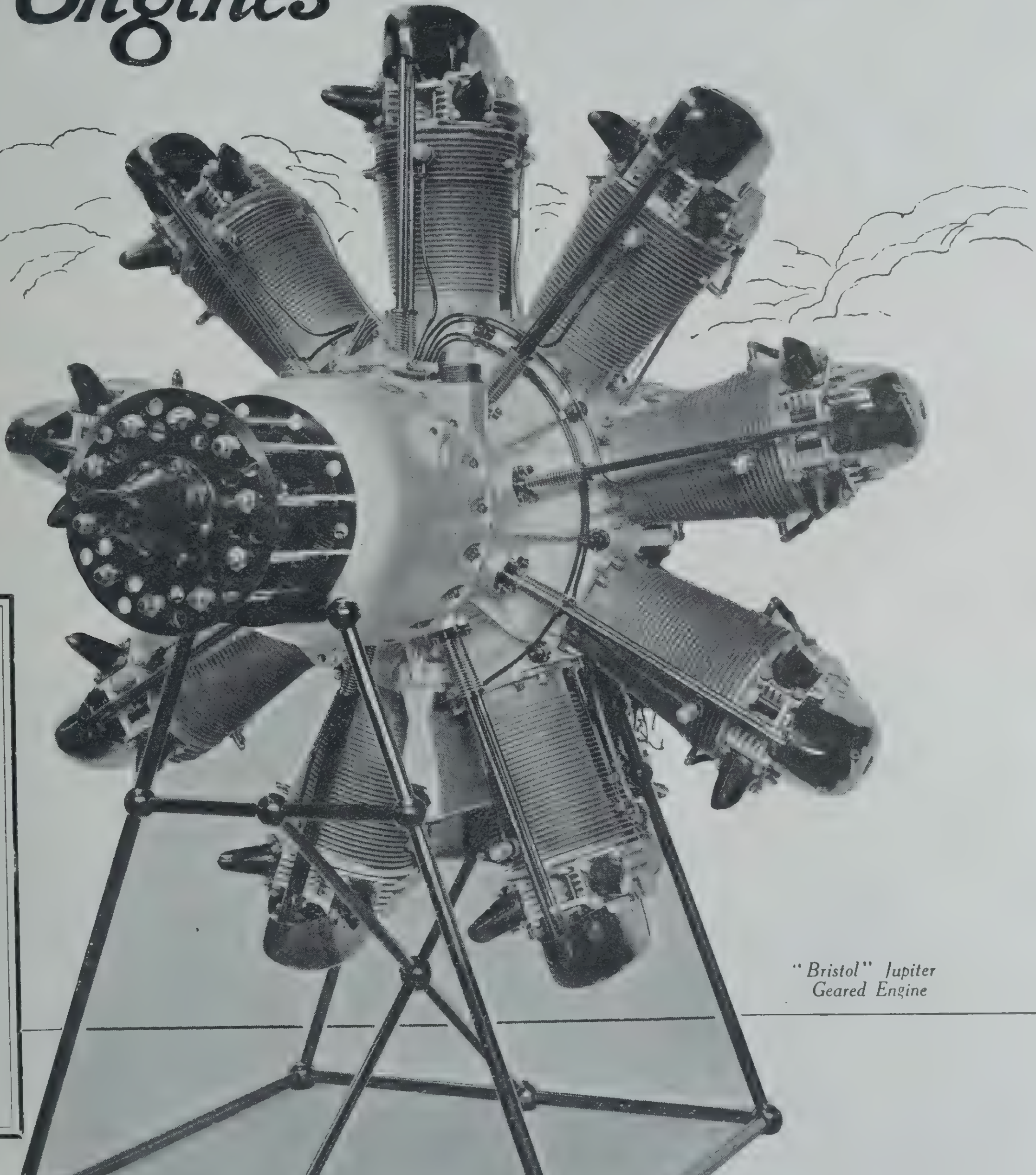

"Bristol" Jupiter
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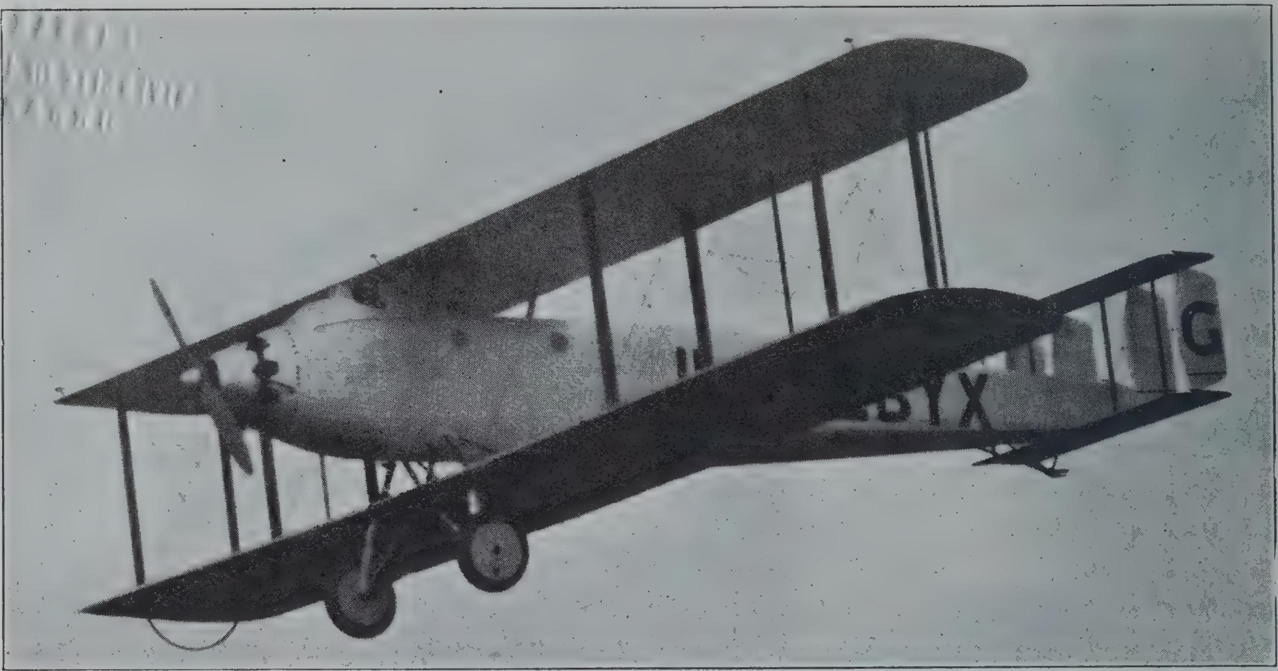


AIR TRANSPORT.—The Vickers Vellore (Bristol geared Jupiter) in the air. This machine has been designed to carry the maximum of useful load in proportion to her own weight. Figures are not yet available, but they are known to be very unusual.—(*" Aeroplane " photograph.*)

to those which are pulled through the air by sheer brute force.

If flies with a gravity and impressiveness which is almost ludicrous in its solemnity. With its enormously long fuselage and generally clean outline it somehow gives the impression of a witch's broomstick of enormous size which has been reformed and piloted by an archbishop. However, there is no doubt that from this machine and its peculiar method of construction may be developed something really useful.

No. 10 was a Supermarine S.5 (Napier Lion) of the Schneider Trophy type. Although there were some heavy showers during the afternoon the aerodrome never became wet enough for it to take off. Presumably in showing her the authorities were safeguarding themselves against the possibility of a delugian Display such as we had in 1922. Anyhow, she looked very beautiful in the Amusement Park and even the most uncultured could understand her diminutive head resistance and beautiful streamlines.

No. 11 was the Vickers Vellore (Napier Lion) classed as a Freight Carrier. Everybody called it the Velour, and nobody seemed to know what is a Vellore. There is a compliment to Vickers workmanship in the fact that no means of ingress or egress for either personnel or property was observable in the machine. There must be a door somewhere, but it is not noticeable. Consequently people wanted to know whether the pilot was pumped in with the petrol or whether he was provided with a tin-opener. Somebody suggested that he must have been layed there and left to hatch.

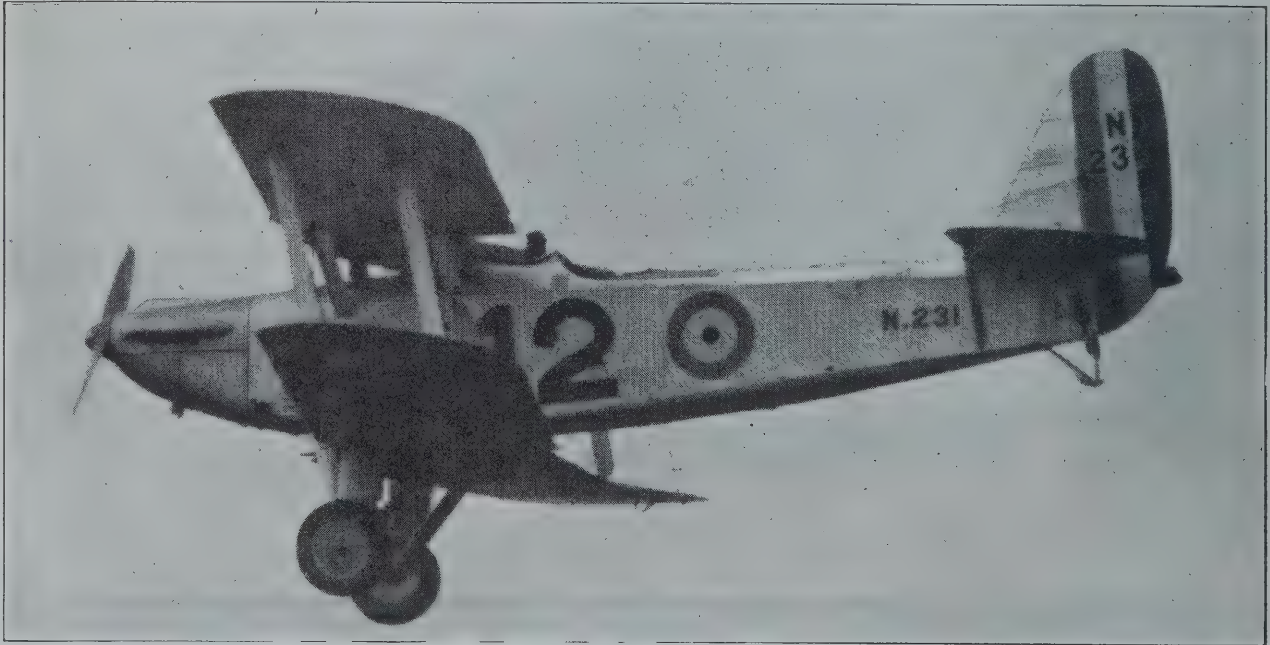
Anyhow, the machine bounces off the ground like a balloon and lands at something like a walking speed, so presumably it must have quite a big weight-lifting capacity for its power.

No. 12 was the Blackburn Ripon (Napier Lion), a torpedo machine developed from the Dart and the Velos. Like all the Blackburn stuff she is a thoroughly good sound job and flies.

No. 13 was the Boulton and Paul Sidestrand (two Bristol Jupiters). This is an experiment in a new type of twin-engined high-speed fighting bomber. She is an extraordinarily pretty job for a twin-engined machine, with a fuselage of very good shape, albeit one thinks somewhat spoiled by the gun position underneath the fuselage, which must decrease the speed a good deal.

No. 14 was a Handley Page twin-Jupiter job, given in the programme as a Hinaidi, but actually one believes known as a Clive. But after all, what's in a name. She is called a Troop-carrying Aircraft, but the difference between her and the good old W.10s which assure the London—Paris service of Imperial Airways is more a matter of engines than anything else.

The machines all flew round after their several kinds and



A TORPEDO-DROPPER.—The Blackburn Ripon (Napier Lion) flying past in the parade of new and experimental aircraft at Hendon on June 30.—(*" Aeroplane " photograph.*)

were much admired. The fact that they were all flown by R.A.F. pilots instead of by their own test pilots added to the interest, for, though some of the machines could only have been flown by these pilots for a few days, they all performed as well as if they had been in the hands of their original pilots employed by the makers.

THE BIG STUFF.

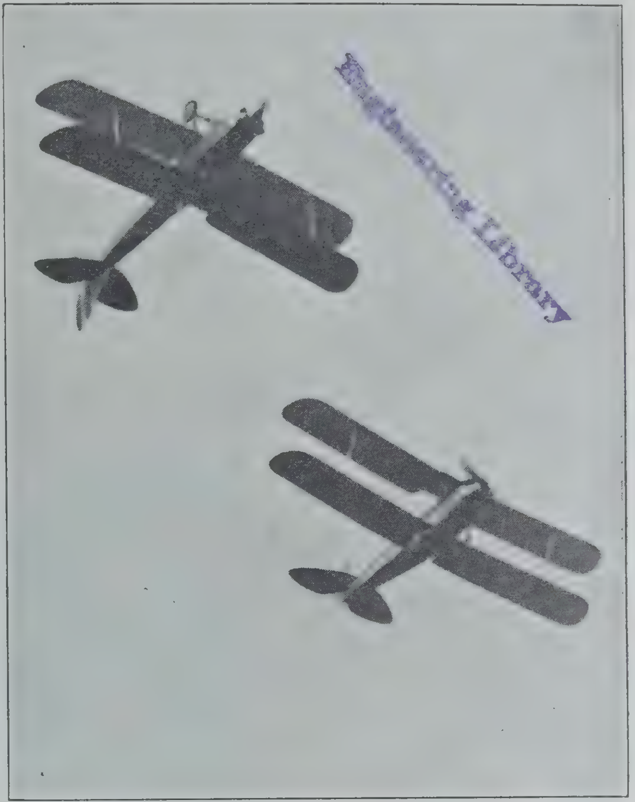
EVENT NO. 7 was an exhibition of taking-off by four Night-Bombing Squadrons and two Day-Bombing Squadrons and two Fighter Squadrons. These were: No. 7, Worthydown, Vickers Virginias (Napier Lions) under Wing Cdr. A. Portal, D.S.O., M.C.; No. 58, Worthydown, Vickers Virginias (Napier Lions) under Wing Cdr. E. W. Norton, D.S.C.; No. 10, Upper Heyford, Handley Page Hyderabads (Napier Lions) under Wing Cdr. H. R. Busteed, O.B.E., A.F.C.; No. 99, Bircham Newton, Handley Page Hyderabads (Napier Lions) under Wing Cdr. B. E. Smythies, D.F.C.; No. 12, Andover, Fairey Foxes (Curtiss D.12) under Sq. Ldr. T. E. Salt, A.F.C.; No. 11, Netheravon, Hawker Horsleys (Rolls-Royce Condors) under Sq. Ldr. P. H. Cummings, D.F.C.; No. 3, Upavon, Hawker Woodcocks (Bristol Jupiters) under Sq. Ldr. E. D. Johnson, A.F.C.; and No. 17, Upavon, Hawker Woodcocks (Bristol Jupiters) under Sq. Ldr. A. R. Arnold, D.S.C., A.F.C.

The noise was terrific and the massiveness of the night-bombers must have been distinctly impressive to those who were unacquainted with the exigencies of modern warfare. As one has often said, there is very little use in trying to bomb a place to-morrow if you have to start the day before yesterday to do it. The contrast between the speed of the night bombers and that of the day bombers was startling.

EVENT NO. 8 was a demonstration of a low bombing attack by the Foxes of No. 12 Squadron which had ascended in the previous event. At the end of this event the Foxes dived past the Royal Box down-wind by flights, the well-known screech of the Curtiss engines giving that ear-splitting effect which seems to impress even the most experienced of aviation people more than anything else in the whole show.

EVENT NO. 9 was an exhibition of individual aerobatics on De Havilland Moths (Armstrong-Siddeley Genets) by Flg. Offs. D. A. Boyle and R. L. R. Atcherley of the Central Flying School. To those who knew anything about flying this event beat anything in the programme for sheer interest.

We have heard a lot about outside loops, that is to say loops in which the pilot dives head-first downwards with himself on the outside of the circle and comes round to the top again right-side-up. The first performance of this feat stands to the credit of the German aerobat Herr Fieseler.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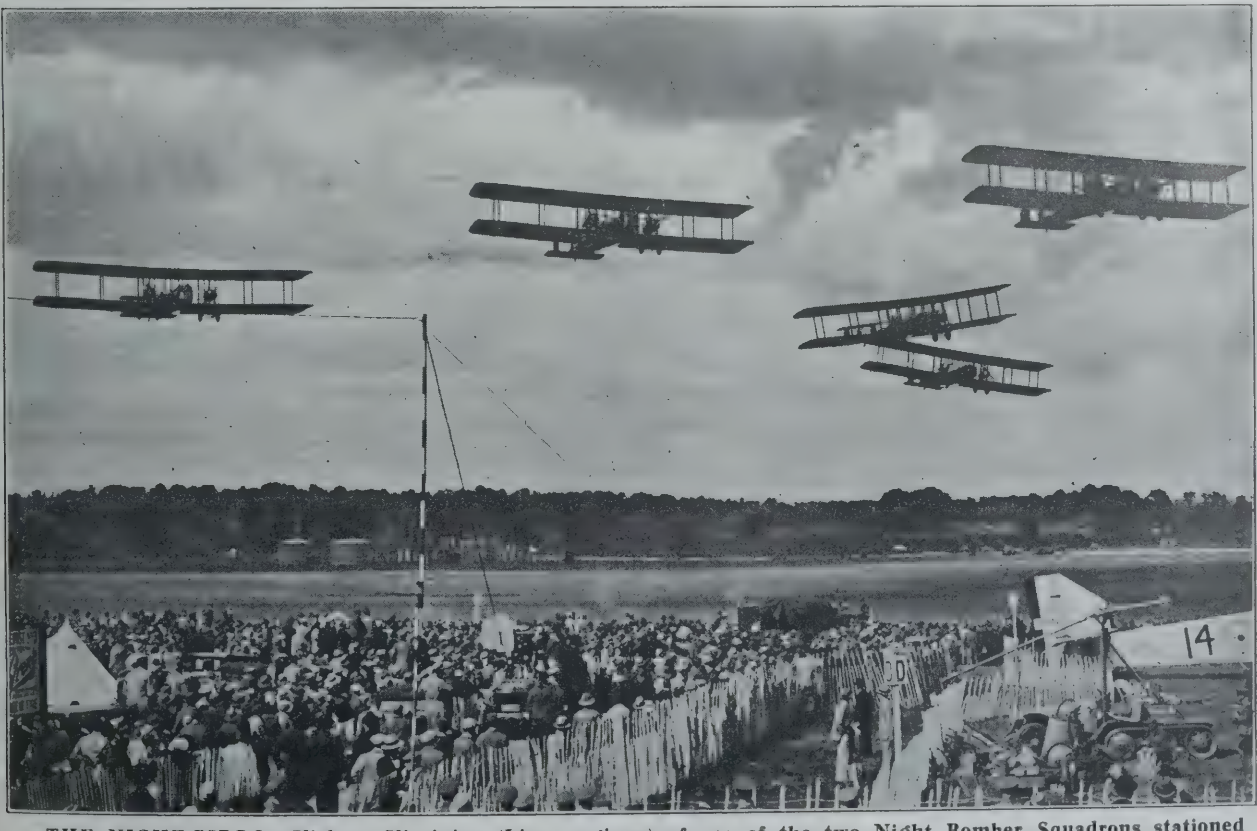
VICE-VERSA.—The two D.H. Moths from the Central Flying School being flown by Flg. Off. D. A. Boyle and Flg. Off. R. L. R. Atcherly in an unusual formation at the R.A.F. Display.—(*"Aeroplane" photograph.*)

Our people started doing it half way and then half-rolling at the bottom of the half-circle and coming up to the top of the loop upside-down instead of right-side-up. This head-first downward half circle became known as the "outward bunt,"—for some reason best known to the pilots. The difficulty about completing the loop has always been to keep the engine running on the upward half, and to hold the machine so as to get enough lift out of the planes, wrong way of the camber, to climb up to the top of the loop again.



THE NIGHT-BIRDS.—Vickers Virginias (Lion engines) of one of the two Night Bomber Squadrons stationed at Worthydown, taking-off over the enclosures in readiness for their fly-past at the R.A.F. Display on June 30. The two Squadrons at Worthydown are No. 7 (Bombing) Squadron and No. 58 (Bombing) Squadron.

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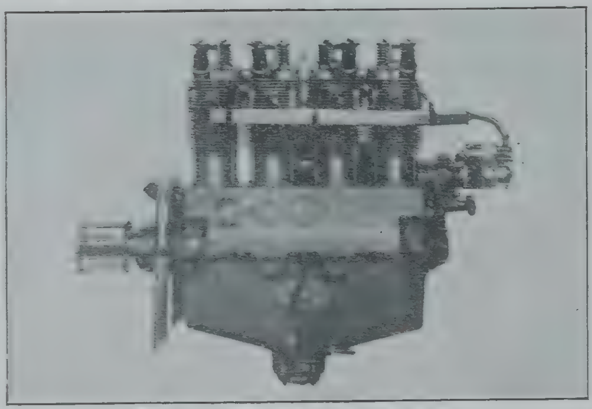

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Aerial view of A.D.C. Aircraft Works at Croydon.

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The complete loop with the pilot on the outside of the circle was first done at the Central Flying School on a De Havilland Moth with an Armstrong-Siddeley Genet engine. The name of the pilot has not been made public. One believes that the engine has been made to run the whole way round the circle by the very simple process of abolishing the ordinary carburetter, which is naturally upset by the centrifugal force when applied upwards instead of downwards, and by fitting a kind of block-tube arrangement such as used to be used on the old Gnome engines. This is kept supplied with petrol by fitting quite a small petrol tank in the undercarriage so that the centrifugal force throws the petrol out into the carburettor.

Anyhow, the pilots concerned in this event did their outside loops quite comfortably. They then proceeded to fly on their backs and to make turns while inverted. And finally they flew in company across the aerodrome one of them upside-down and the other right-side up close to him in the position which would have meant the left hand side of a flight formation if there had been another machine on the other side of the tail of the inverted machine. They did other aerobatic feats, but they were tame in comparison.

Event No. 10 was an air battle. Bombers of all kinds approached Hendon. A single-seat fighter squadron attacked a formation head-on and machines of both forces were shot down in the flames of Holt flares and the smoke of stannic chloride. Anti-aircraft puffs were liberally handed overboard by the crews of the bombers.

A second enemy formation of twin-engined bombers was attacked from behind by another squadron of single-seaters and more machines descended in flames and smoke.

Finally one bomber broke away by itself and was attacked by two single-seaters which put up a pretty show, though according to the recollections of war pilots the single-seaters appeared to open fire considerably further away from the enemy than they would have done in real war,—at any rate unless they were novices. The old injunction to hold your fire till you could see the whites of the eyes of the enemy's gunners was certainly not obeyed. But this may possibly have been owing to the Air Staff's fear of possible collisions in the air. Anyhow, the public appreciated the show.

Event No. 11 was a fly-past of the night bombers which had ascended in Event No. 7. They were impressive.

Event No. 12 was the usual Set Piece. This year the Air Ministry, having been warned off hill forts and Arab villages and Chinese temples by the assorted friends of every country but their own among politicians, and apparently having been diverted from warships as targets out of respect for the Fleet Air Arm and the Admiralty, the target was made into an oil refinery.

Considering that the only country in the World which owns oil refineries and also is ever likely to fight us is the Union of Socialist Soviet Republics it strikes one that *The Daily Herald* and its political supporters have a better opportunity than ever for attacking the Air Ministry in the House and charging it with making propaganda against the spiritual home of the Socialist Party.

In such an agitation the Communists might even win the support of the people of this country who are concerned with importing petrol from Russian oil wells which had been stolen by the Soviet Government from respectable European capitalists.

The attack was quite amusing. A flight of Fairey Flycatchers of No. 405 (Fleet Fighter) Flight, Donibristle, under Flt. Lt. F. E. Bond first flew at the oilery where their approach was observed by a kite-balloon.

The kite-balloon certainly appeared to be handled by Bolshevik troops. To begin with they let the tail up first, with the result that the nose of the balloon was blown in to an extent which must have driven the old experts of Roehampton to a frothing fury. Then when it was let up the people in charge of the winch put it in such a position that if it were shot down it must inevitably fall on the oil works.

It *was* set on fire and it *did* fall on the oil works, with the result that the derricks and offices went up in flames without waiting for attack by the bombers. As soon as it caught fire our old friend Sq. Ldr. Sandbags, or his Russian equivalent, descended by parachute and very nearly landed in the crowd on the far side of the aerodrome. Presumably being only an imitation Bolshie he will get his 4th or his 5th Bar to his O.B.E.

Thereafter a composite flight of Fairey III.F reconnaissance machines of No. 443 (Composite) Flight, Leuchars, under Flt. Lt. J. McFarlane, M.C., and the D.H.9as of No. 600 (City of London) (Bombing) Squadron, and No. 601 (County of London) (Bombing) Squadron, proceeded to bomb the oil tanks, which had caught light from the balloon. Presumably the fire must have upset the cables which actually cause the explosions of the supposed bombs, with the result that some of the explosions did not take place, and others had distinctly delayed action. Still, there was plenty of noise and plenty of smoke and plenty of flame and tens of thousands of Pacifist Britishers enjoyed it all hugely.

After that we all went home in peace, very well pleased with an enjoyable and instructive day.

Envoi.

Taking the Display all round there was nothing very exciting about it compared with previous Displays. But it struck one that the whole standard of flying was much more finished and neater and cleaner than at any previous Dis-

FLEET AIR ARM CO-OPERATION.—Fairey III Fs of No. 443 (Composite) Flight, Fleet Air Arm, flying over the Oil Refinery, which was the target of the set-piece at the R.A.F. Display on June 30. No. 443 Flight should have destroyed the target with bombs, but unfortunately Major Sandbags, O.B.E., of the K.B. section of the defence, "spoke out of his turn" and set fire to the Oil Refinery before the attacking force arrived.

(*"Aeroplane" photograph.*)

play. This opinion has been confirmed by a number of quite experienced pilots, so one may fairly assume that the all-round standard of flying in the R.A.F. is higher than ever before. Which means that we may pride ourselves on being streets in front of anybody else in the World.

The organisation and staff work was quite perfect. In spite of a very heavy shower at lunch time and another an hour or so later, the second of which certainly made flying impossible while it lasted, every event was flown to the tick of the clock as indicated in the programme.

Whatever the enemies of the Air Staff and of the Air Ministry may say, the fact remains that we have got undoubtedly the finest Air Force in the World, and we have got the best built aeroplanes and engines in the World. The fact that we have not got either as many men or as many machines as we ought to have considering our importance as a World-wide Empire is not the fault of the Air Ministry or the Air Staff, it is entirely the fault of the politicians. So, if those disgruntled people want to attack anybody, for Heaven's sake let them in future attack the House of Commons as a whole and not a Service which is making such a magnificent show on so little money.—C. G. G.

OUR ITALIAN HOSTS.

Engineering Library

On July 2 General Verduzio, the Italian Air Attaché at the Court of St. James, entertained to dinner His Excellency General Balbo, Under-Secretary of State for Air in Italy, the officers who had accompanied him in that remarkable non-stop flight from Rome to London last week, and certain English guests who thoroughly appreciated the honour accorded to them

General Balbo, in proposing the toast of British Aviation, promised that when he came to England next year for the Schneider Trophy Contest he would speak in English. He paid a deserved tribute to our late friend General Guidoni. He said that after our contest in Venice we were all better friends. He had brought over a bigger number than ever of Italian officers this year to see the R.A.F. Display at Hendon and in doing so he had demonstrated that there were no barriers between Rome and London and that communication could be made in a single flight.

He wished to thank everybody here for the cordial reception that had been given to them and for being shown all our aircraft factories. All this would give his men valuable experience. He assured us that our technical work was closely followed by himself and his people. They would all return to Italy with kindly memories of how they had been treated here.

Captain Peter Acland, Chairman of the S.B.A.C., in reply said that he would like to associate the whole aeronautical movement in England with General Balbo's words about General Guidoni, whom we all held in the highest esteem

Continuing, he said that it might interest Italy to hear something about the Schneider Trophy Contest next year He could not say much because (1) We do not know the place where it will be held, (2) We do not know the date, (3) We do not know what machines we shall enter, (4) We do not know what engines we shall use, (5) We do not know what pilots will fly. (This when translated appealed enormously to the abounding sense of humour of the Italian officers.)

He hoped that when our Italian friends came over for the contest we should be able to welcome them worthily, though it would be hard for us to compete with the hospitality which was shown to us at Venice. He was glad to offer congratulations to Major de Bernardi on getting the speed record. When the news reached here it was received with enthusiasm only second to what it would have been if we had got the record ourselves. He also offered congratulations to Major Ferrarin on his recent long-distance record And he welcomed among them Captain Guazzetti, the third member of the Schneider team. Among other great Italian achievements we must not forget the wonderful flight of 61 seaplanes of the Regia Aeronautica all round the Mediterranean.

He appreciated this visit from our close allies and said that we would always welcome them as a means of advancing the cause of aviation by the exchange of ideas He looked forward in the future to a regular ten-minutes service between Rome and London, whether on Italian or English machines did not matter.

Col. the Master of Sempill, giving the toast of Our Italian Friends, referred also sympathetically to our old friend General Guidoni. He said how complimented we all were to meet the cream of Italian Aviation.

Here one may note that General Balbo's fleet, which has been parked at the R.A.F. Aerodrome at Hornchurch, consists of 12 machines, 6 Ansaldo 120s, and 6 R.22s, all with Fiat 22 engines. The flight was made non-stop from Rome to Hornchurch, with the exception of one machine, which was brought down on Italian territory by a defect in the oiling system, but continued the journey shortly afterwards

C. G. G

AN AIR COUNCIL LUNCH.

A private luncheon was given by the Air Council to Foreign Air Service Officers at the Savoy Hotel on July 2. Sir Samuel Hoare, Secretary of State for Air, presided.

The guests were :—

France.—General Sergault, General Pujo, Admiral Frochet, Capt. Fournier, Lt. de Vaisseau Amet, Lt. de Vaisseau Bos, Lt. de Vaisseau Sala, General de Sejanne, Wing Cdr. Smyth-Piggott.

Italy.—General Balbo, General Verduzio, Col. Tedeschini-Lalli, Maj. de Briganti, Capt. Badouin, General Lombardi, Grp. Capt. C. R. S. Bradley.

Belgium.—Colonel Catton, Colonel Nerinex.

Denmark.—Admiral Rechnitzer, Capt. Grandjean.

Sweden.—General Amundsen, Colonel Mossberg, C.B.E., Sq. Ldr. Lundstrom.

Norway.—Capt. Van der Lippe.

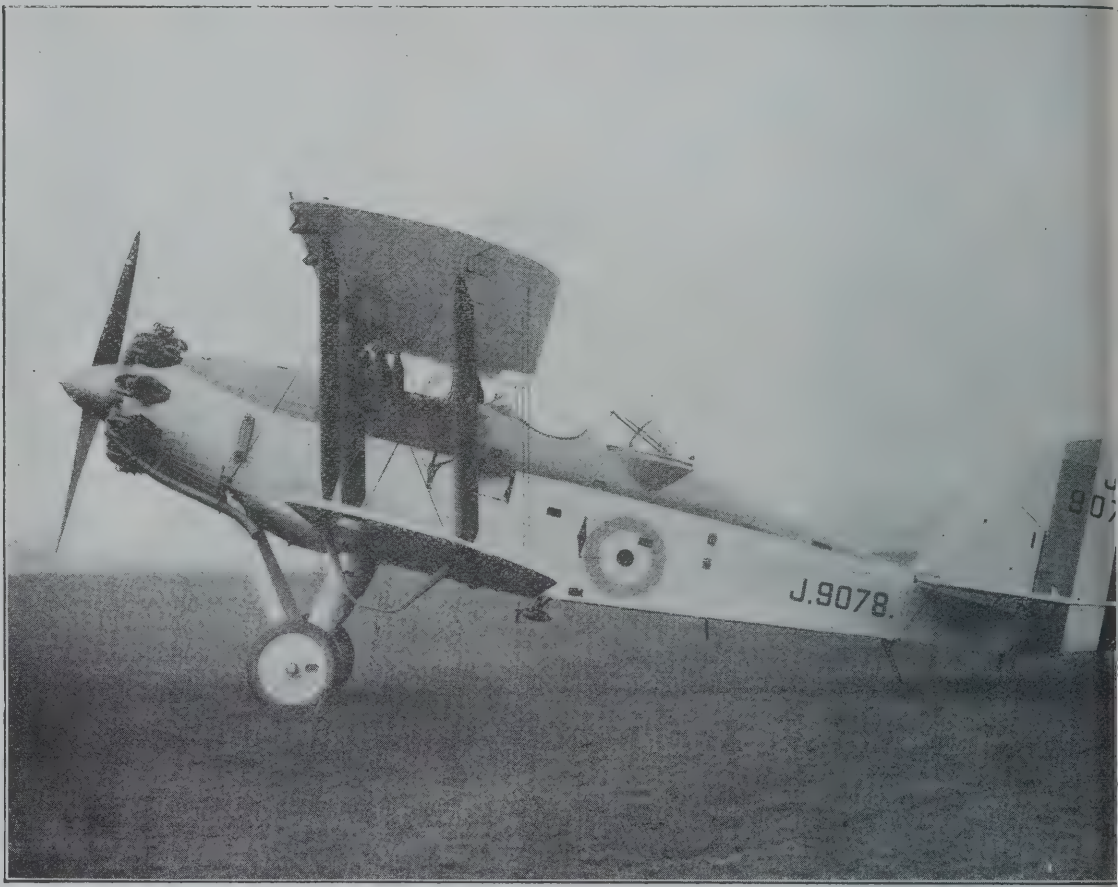
Air Ministry.—Sir Samuel Hoare, Sir Philip Sassoon, Marshal of the R.A.F. Sir Hugh Trenchard.

Air Vice-Marshal Sir Philip Game, Air Vice-Marshal Sir John Higgins, Sir Sigmund Dannreuther, H. W. W. McAnally, Esq., B. E. Holloway, Esq., J. A. Webster, Esq., Air Commodore C. L. N. Newall, Air Vice-Marshal Sir Ivo Vesey, Air Commodore H. C. T. Dowding, Air Vice-Marshal D. Munro, Air Commodore A. M. Longmore, C. Ll. Bullock, Esq., Sir Geoffrey Butler, Sq. Ldr. A. R. Boyle.

Air Officers Commanding.—Air Vice-Marshal Sir Robert Brooke-Popham, Air Commodore F. V. Holt, Air Vice-Marshal C. L. Lambe, Air Vice-Marshal C. A. H. Longcroft, Air Vice-Marshal F. R. Scarlett, Air Vice-Marshal T. I. Webb-Bowen.

DISTINGUISHED VISITORS.—His Excellency General Balbo, Italy's Under-Secretary of State for Air, with some of the officers of the Regia Aeronautica, who flew with him non-stop from Rome to London.

A "General Purposes" Aircra



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In these latter it has by no means always been used in machines of British make, for quite a number of foreign aircraft designers have chosen the Cirrus Mk. II as the most suitable engine in the world for the lighter type of training and touring aeroplane.

Nor has the Cirrus been used only as an engine for the training of, or for use by, the sporting type of private pilot. Machines fitted with this engine are in use by the British Royal Air Force, the Royal Australian Air Force, the Royal Canadian Air Force, the Irish Free State Army Air Corps, and the Chilean Government, both for Service training and for communication services.

They are being used by the Air Service of the Ontario Provincial Government in Canada for forestry patrols, and the Air Survey Co. Ltd. have a Cirrus engine in a photographic survey machine which has proved itself to be thoroughly satisfactory for photographic work of the most accurate type under quite difficult conditions.

All told, these engines are at present in use in twenty-six different countries and in sixteen different types of aircraft, and the demand for it is such that the A.D.C. works at Croydon have for some time had their maximum possible output of these engines sold for some months ahead.

The advent of the Cirrus Mk. I engine a few years ago put an entirely new complexion on the problem of the economical sporting and training two-seater aeroplane. Efforts which had been made to produce such machines with engines of 30/40 h.p. had produced surprising performances, but only with machines and engines so light in construction that they were expensive to build and fragile to use.

It was at once proved that a two-seater, using a Cirrus engine, though necessarily heavier than these earlier efforts, was cheaper to build, easier to fly, and more economical to maintain than the lower-powered types, and it is probably true to say that but for the Cirrus the British flying clubs could never have been as successful as they have been, and the growth of the private owner class of pilot would never have occurred.

The Cirrus Mk. I is still in service, and has proved an exceedingly reliable engine. Experience however with these engines led to a demand for a little more than the 60 h.p. of this engine, combined with the good qualities which it had shown itself to possess.

A.D.C. Aircraft Ltd. therefore produced the Mk. II Cirrus. In all essentials of design it reproduces the satisfactory features of the original model. The bore of the cylinders has been increased slightly, a number of minor modifications were incorporated, and the result is an engine giving some 20 h.p. more than the original type for the same weight, and with a reliability and ease of maintenance which is if anything superior to that of its predecessor.

As witness of the dependability of the Cirrus Mk. II, it is necessary only to recall that this engine was used by Mr. Bert Hinkler on his fifteen and a-half days' flight to Australia; by Mr. Lancaster and Mrs. Keith Miller on their flight to Australia; by Mr. R. R. Bentley on his flights to South Africa and back; by Lady Bailey on her flight to Cape Town; by Lady Heath on her return from the same place; and that the Race for the King's Cup—always a gruelling test of engines—has twice been won (1926 by Mr. Hubert Broad, and 1927 by Mr. W. L. Hope) with these engines.

The Cirrus Mk. II engine is of the four-cylinder-in-line type, with air-cooled cylinders. The cylinders are of cast-iron, and the cylinder-heads, which are detachable, are of aluminium alloy. Two overhead valves have their seats in the head. The process of decarbonisation and of grinding-in valves—necessary at intervals in all internal-combustion engines—is a somewhat simpler business in the Cirrus than in the majority of motor-car engines, and is within the ability of any reasonable, conscientious mechanic.

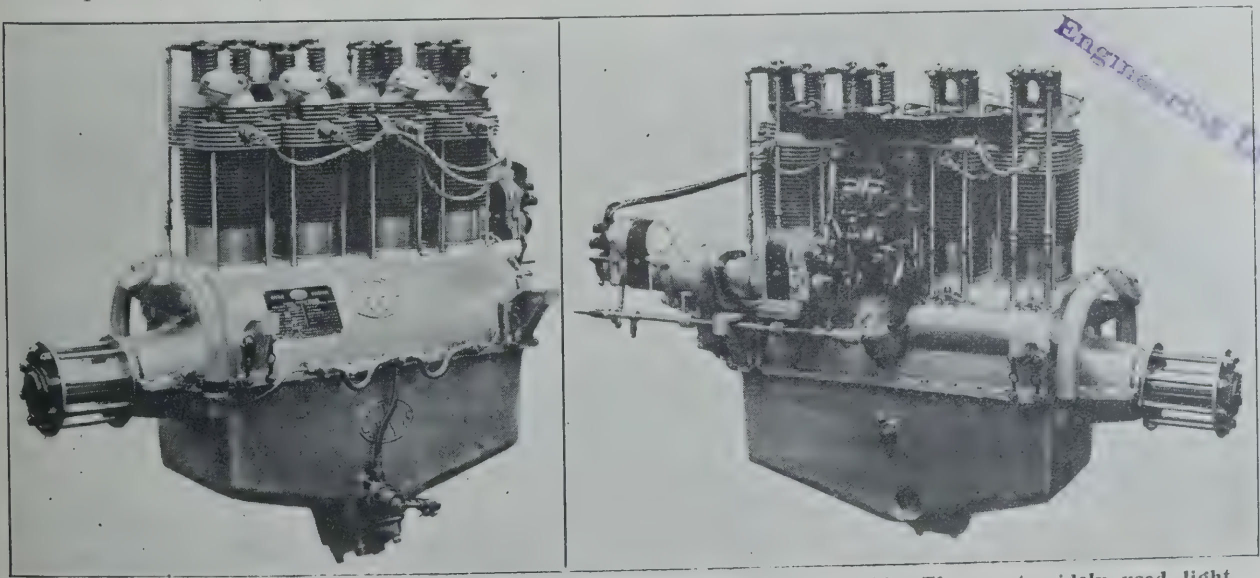
The overhead valves are operated by push-rods from a cam-shaft in the side of the crank-case, and rocker-arms and rocker-brackets carried from the cylinder-heads. The whole of the overhead gear is easy of access for adjustment and maintenance, and all parts subject to wear are easily renewable. Here again only care and intelligence are required for upkeep.

The crankcase is a simple, substantial aluminium casting, which also serves as an oil-container, carrying enough oil for a five hours' flight. Thus no oil tanks and oil connections have to be provided outside the engine. This oil base houses an oil pump which forces oil through a filter to all the main crankshaft-bearings. Big ends are lubricated by oil-throwers, and all other bearings by oil-spray.

The engine is fitted with two B.T.H. magnetos, supplying two spark plugs per cylinder. One of these has an impulse-starter coupling, with the result that the engine starts remarkably easily by swinging the airscrew. A special hand-starter, operated from the cockpit, can, however, be fitted if desired.

The Cirrus Mk. II has a bore and stroke of 110 mm. by 130 mm., a compression ratio of 4.9 to 1, and it is rated at 75 b.h.p. at 1,800 r.p.m., normal, and 80 b.h.p. at 2,000 r.p.m. maximum. Its weight complete is 280 lbs. (127 kg.), and its petrol consumption is 0.6 pints per b.h.p. hour at normal power. In practice the average cruising consumption in an efficient two-seater light aeroplane is found to be about 4¼ to 4½ galls. per hour.

Space does not permit of any adequate reference here to the other products of A.D.C. Aircraft Ltd., but it may be remarked that in its own sphere the A.D.C. Nimbus—a six-cylinder water-cooled engine of 300 h.p.—has proved to possess those same qualities of reliability and economy that are found in the Cirrus type.



Engineering Library

THE CIRRUS MARK II ENGINE OF 80 H.P.—Made by A.D.C. Aircraft Ltd. The most widely used light aeroplane engine in the World.

ARMSTRONG SIDDELEY MOTORS Ltd., Coventry.

The Armstrong Siddeley Lynx Engine.

By reason of its remarkable performance during Lt. Koppen's Amsterdam-Batavia and back, 18,000 miles in twenty days' flight, the Armstrong Siddeley Lynx engine has achieved a great and international reputation. Three engines were used in the Fokker monoplane and similarly equipped machines are to be employed in the Dutch Archipelago Service and on the Munich-Milan air line over the Alps. A description of the latest Lynx is therefore of considerable general interest.

The engine is a seven-cylinder air-cooled radial, and by passing a recent type test has been rated up to a normal b.h.p. of 215 at 1,900 r.p.m., so that it now comes into a very popular class of power unit, and is available for fitting to both land and seaplane training aircraft, fighter, ship-fighter and deck-landing aircraft and commercial aircraft of various types.

The Cylinder.

The aluminium head is screwed and shrunk on to the end of the barrel and there locked by a screwed ring, which is also a fin. The aluminium bronze valve seats are screwed and shrunk, and expanded into their sockets. Phosphor-bronze valve guides are fitted, but are not interchangeable. Two sparking plugs per cylinder are fitted in phosphor-bronze adapters screwed, shrunk, and pegged in position. A gas starter non-return valve may be mounted in a third adapter.

The cylinder barrel is a mild steel forging with its lower end threaded for engagement with an adapter fitted in the mouth of the crankcase. When the cylinder is screwed home into the adapter a barrel locking-ring is clipped between a shoulder formed beneath the lowest cooling-fin and the outer end of the crankcase mouth. The locking-ring is then contracted by a bolt which passes through its bossed ends and wedges the cylinder and adapter on to the crankcase.

The pistons are alloy forgings, carrying two compression rings with below them a scraper ring. The hollow gudgeon-pin floats, and is located laterally by circlips.

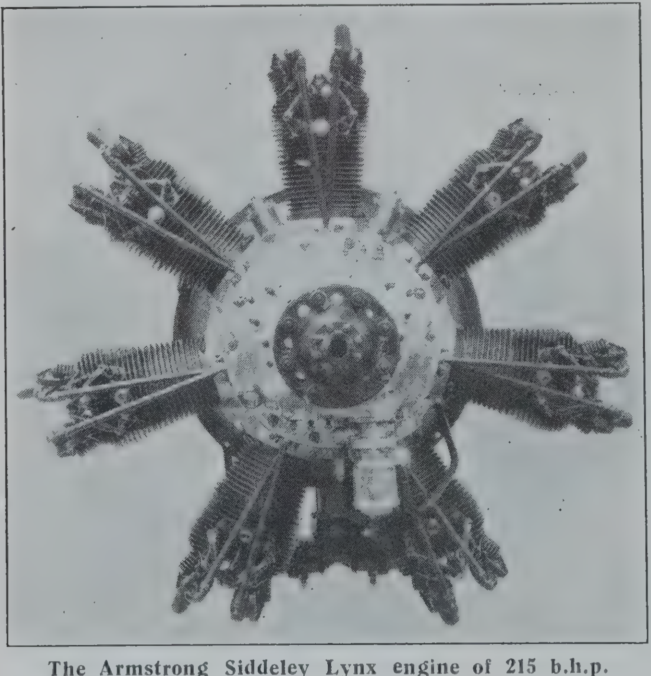
The Connecting Rod Assembly.

Split-master, and plain auxiliary, rods are used. The big end of the former is separate from its shank, and is called the master-ring. It is split across the diameter and provides not only the crank-pin bearing, but also the housings for the outer wrist-pin bushes. The two halves of the ring are lined with white metal, which is keyed direct into holes machined in the ring.

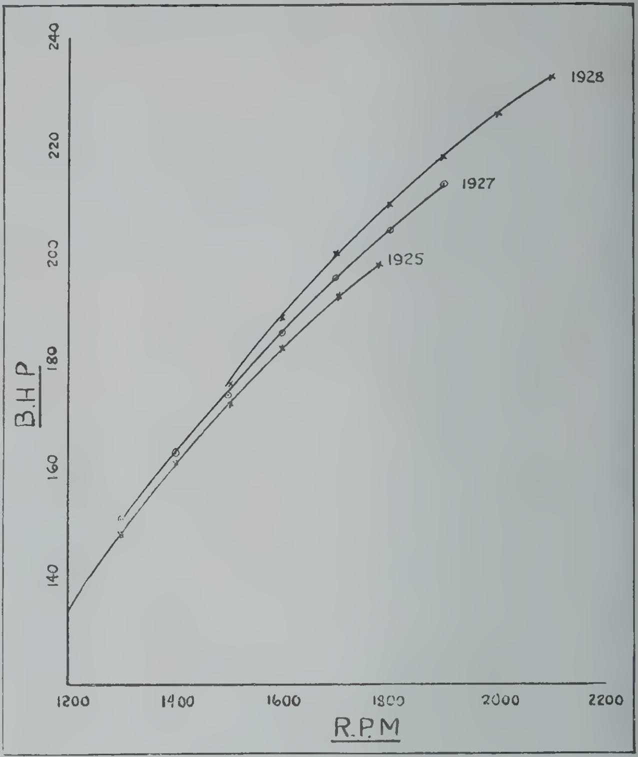
The anchor-pins which secure the master-ring to the rod are drive-fits in both. The auxiliary rods are attached to the master-ring by wrist-pins, which float in bushes fitted in the ends of the rods and in the cheeks of the master-ring.

The Crankshaft.

The single-throw hollow crankshaft is balanced by gun-metal weights fitted to each web. It is supported on three roller-bearings, one on each side of the crank-throw, and the third, which is a steady-bearing, towards the forward end of the shaft behind the airscrew hub.



The Armstrong Siddeley Lynx engine of 215 b.h.p.



Power curves of the Armstrong Siddeley Lynx engine showing the development of the last few years.

The Crankcase.

The crankcase assembly comprises the engine, body, the front cover, the induction fan casing, the rear cover and the engine bearer. The body includes the cylinder sockets and valve gear. Its forward face is sealed by the front cover which houses the thrust-bearing assembly and provides the mountings for the oil pump, gas-starter distributor and cowling supports.

The induction fan-casing seals the rear face of the engine body, houses the fan and provides sockets for the inner ends of the seven induction pipes. Its rear face is closed by the rear cover, on which are mounted the two magnetos, tachometer drive and heater-box.

The engine-bearer, which is attached to the engine body, provides the mounting for the engine in the aircraft.

The Fan.

The fan, which assists the distribution of the mixture is keyed on the crankshaft, a phosphor-bronze gland nut maintaining an oil-tight joint between the hub of the fan and the rear face of the housing for the outer race of the rear main bearing.

Cam Gear.

A single cam-ring operates all push-rods, two rows of three cams being machined on the ring, the forward row operating the inlet-valve tappets and the rear row the exhaust. This ring is mounted around the rim of the cam-bearer which houses the bearings on which the unit is supported.

The timing bracket is attached to bridge pieces cast between the inner and outer sockets for the tappet guides. It accommodates two compound gear-wheels which drive the annulus and are driven from the spur-gear pinion machined around the centre portion of the driving-sleeve.

The cam-ring is driven in the opposite direction to the cam-shaft, at one-sixth the crankshaft speed.

Tappets and Guides.

Tappets are mounted one behind the other in guides common to each pair. They are interchangeable and carry flat-faced rollers at their lower ends. They operate adjustable hollow-steel push-rods, which in turn control rockers mounted in brackets on the cylinder-head platforms. The H-section rockers are supported on two single row journal ball-bearings.

Lubrication System.

The lubrication system employs a feed pump and a scavenge pump; the former is supplied from a tank and delivers to a filter in the front cover. From here the oil passes into the engine. Surplus oil drains into the sump, from which the scavenge pump delivers it to the heater-box,

ROLLS-ROYCE
FLYING THE ATLANTIC

Nine years ago

The first direct flight across the Atlantic was made in 1919. At the Science Museum, South Kensington, may be seen the actual Vickers-Vimy Aeroplane with its two

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whence it returns to the oil tank via the jacketed portion of the rear cover. The pump is skew-driven at half-crankshaft speed, and a pressure relief-valve is incorporated with the unit.

AUXILIARIES.

The two magnetos are driven from a bevel-wheel mounted on a spindle driven from the rear end of the crankshaft. Provision is made for a hand-starter unit and a tachometer drive.

Each magneto is spigot-mounted to the sides of the extension at the back of the rear cover. Packing shims are interposed between each magneto and its seating to enable the depth of mesh of the driving bevels to be adjusted.

A Zenith carburettor, type 65G, is fitted beneath the rear cover and separated from it by an oil-jacketed junction-piece known as the heater box, through which passes warm oil from the scavenge pump. The mixture enters the rear cover from the heater-box and passes into the fan induction chamber, where it is churned up by the fan.

MODIFICATIONS.

The latest engines incorporate a number of interesting refinements, which have been adopted in order to render the engine still more economical in service. The following is a summary of these improvements :—

VALVES.—There is now no loose pad, the end of the valve being hardened and the design being strengthened in consequence.

VALVE GEAR.—The rockers, which are now angled to suit the push-rods, are fitted with a screwed bush, locked with a clamping screw, to provide the necessary tappet adjustment. Each push-rod is fitted with a ball on the tappet end and a flat at the rocker end, movement of the rocker being allowed for by the loose pad which is integral with the screwed bush. The faces of the pad are cylindrical in a direction of 90° to each other, and the rocker-bearings (combined radial and thrust) are lubricated by means of a grease-gun and nipple fitted on the rocker-spindle. Rubber grease containers are fitted to both ends of the push-rods.

The result of these modifications is to eliminate wear and to facilitate lubrication and tappet-rod adjustment.

The engine can be supplied with braided or rubber-cabled ignition, gas, hand or Eclipse inertia starter, C.C. gun-gear or drive for mechanical gun-gear and drives for petrol pumps. In the cases where an inertia-starter is required a strengthened rear driving-shaft and fan induction-casing cover are fitted.

ARMSTRONG WHITWORTH AIRCRAFT Ltd., Coventry.

The Atlas, designed by Sir W. G. Armstrong Whitworth Aircraft Ltd., of Whitley, Coventry, is a two-seater General Purposes aeroplane. It is fitted with a Jaguar engine which may be of various types according to the purpose for which the aircraft is intended. It is the standard Army Co-operation aeroplane for the British Air Service, for which purpose it carries two machine-guns, wireless, camera, message-picking-up gear and small bombs. It can also be arranged as a light bombing aeroplane, for which purpose the total load carried is increased and extra petrol tanks can be fitted.

FUSELAGE.—This is made of high tensile solid drawn tube braced with swaged wire and built up with mechanical joints without the use of welding. There is ample room for the pilot and gunner, and a prone position for bombing can be provided.

WINGS.—Arranged as a biplane with the top plane larger in chord and span than the bottom plane. The construction is entirely in high tensile strip steel and solid drawn tube and bracing wires, except the covering, which is of fabric. The interplane struts are streamline tubes. The ailerons are on the top plane only and have horn balance.

TAIL.—The tail plane and rudder are of similar steel construction to the wings. The elevators and rudder are both balanced.

ENGINE INSTALLATION.—The Jaguar engine is mounted on a pressed steel bearer which can be detached with the engine by undoing four bolts. The magnetos and carburettor are accessible through large doors in the fuselage. The petrol supply is by gravity from a 75-gallon tank in the fuselage. Extra tanks can be carried on the wings to increase the range. The Jaguar engine may be supercharged or unsupercharged and the airscrew may be geared or ungeared. The performances given are for a geared engine unsupercharged, with normal petrol and 800 lbs. of military load. The petrol is enough for four hours' flying at a cruising speed of 120 miles an hour.

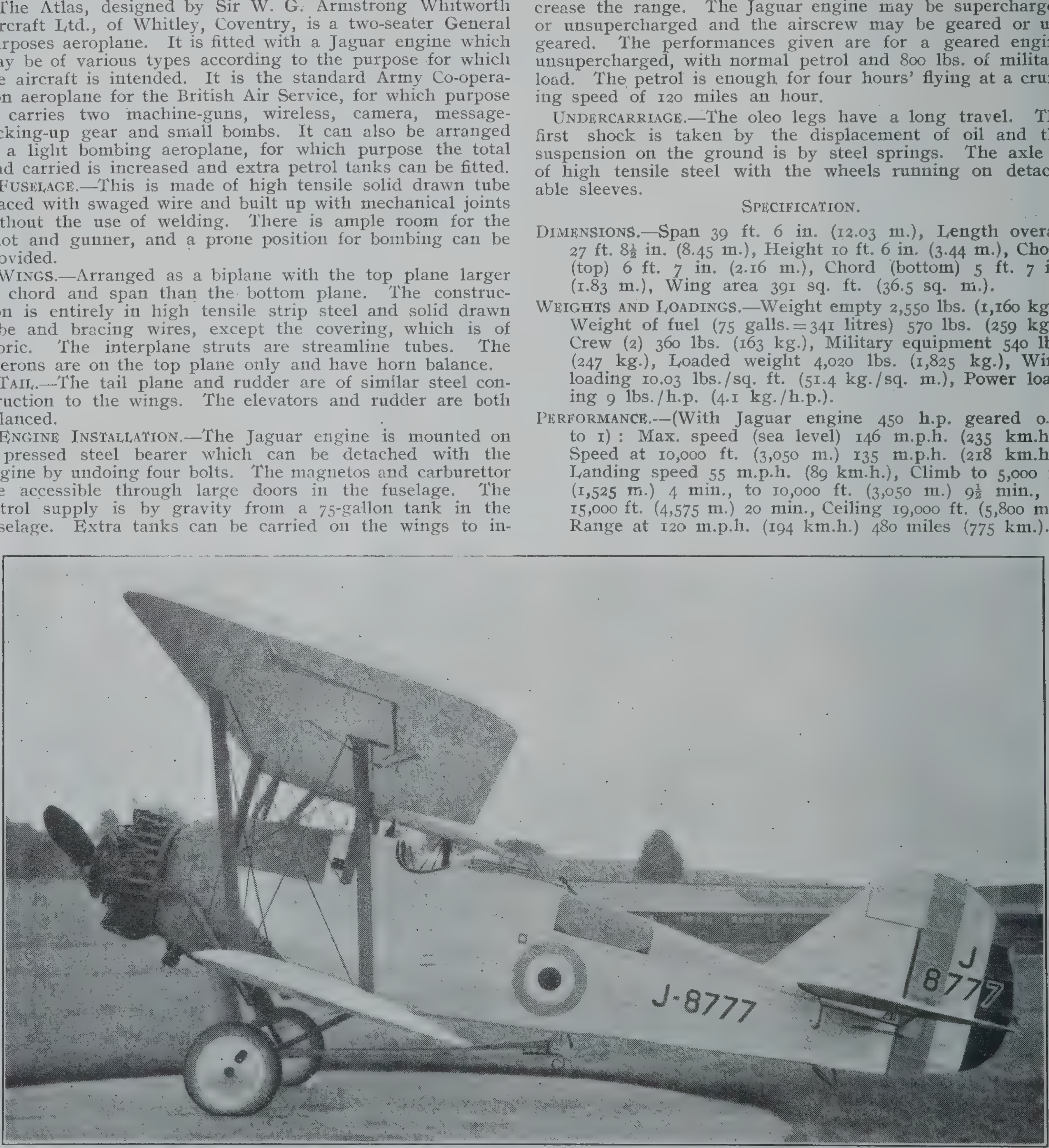
UNDERCARRIAGE.—The oleo legs have a long travel. The first shock is taken by the displacement of oil and the suspension on the ground is by steel springs. The axle is of high tensile steel with the wheels running on detachable sleeves.

SPECIFICATION.

DIMENSIONS.—Span 39 ft. 6 in. (12.03 m.), Length overall 27 ft. 8½ in. (8.45 m.), Height 10 ft. 6 in. (3.44 m.), Chord (top) 6 ft. 7 in. (2.16 m.), Chord (bottom) 5 ft. 7 in. (1.83 m.), Wing area 391 sq. ft. (36.5 sq. m.).

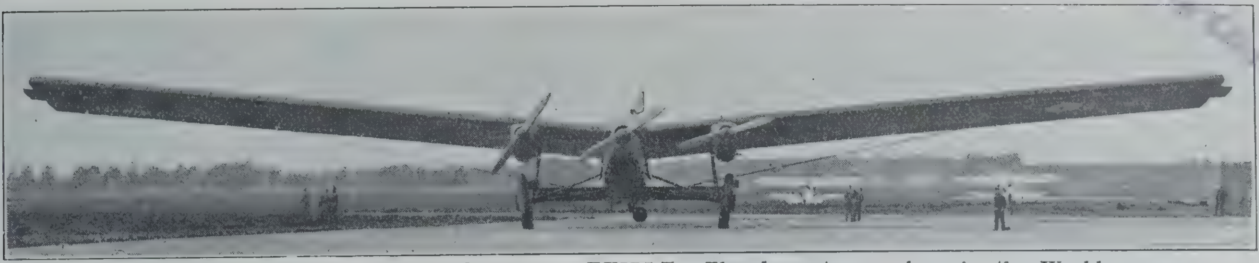
WEIGHTS AND LOADINGS.—Weight empty 2,550 lbs. (1,160 kg.), Weight of fuel (75 galls. = 341 litres) 570 lbs. (259 kg.), Crew (2) 360 lbs. (163 kg.), Military equipment 540 lbs. (247 kg.), Loaded weight 4,020 lbs. (1,825 kg.), Wing loading 10.03 lbs./sq. ft. (51.4 kg./sq. m.), Power loading 9 lbs./h.p. (4.1 kg./h.p.).

PERFORMANCE.—(With Jaguar engine 450 h.p. geared 0.65 to 1) : Max. speed (sea level) 146 m.p.h. (235 km.h.), Speed at 10,000 ft. (3,050 m.) 135 m.p.h. (218 km.h.), Landing speed 55 m.p.h. (89 km.h.), Climb to 5,000 ft. (1,525 m.) 4 min., to 10,000 ft. (3,050 m.) 9½ min., to 15,000 ft. (4,575 m.) 20 min., Ceiling 19,000 ft. (5,800 m.), Range at 120 m.p.h. (194 km.h.) 480 miles (775 km.).



THE ARMSTRONG WHITWORTH ATLAS.—An all-metal two-seater Army Co-operation machine of high performance. The engine is a 450 h.p. Armstrong Siddeley Jaguar with airscrew reduction gear.

WM. BEARDMORE & Co. Ltd., Dalmuir, Nr Glasgow.



THE BEARDMORE INFLEXIBLE.—The largest aeroplane in the World.

Since the end of the War the aircraft work of Wm. Beardmore and Co. Ltd. has been directed mainly along lines rather of development than of production, it being the policy of the firm to reduce the design and construction of both aircraft and aero-engines to a sound engineering basis.

In their aircraft department they produced soon after the War a number of experimental all-metal machines of considerable interest. At a somewhat later date they became impressed by the type of all-metal construction originated in Germany by Dr. Rohrbach, with its obvious kinship to methods commonly employed in shipbuilding and other heavy branches of engineering. They therefore acquired the British rights in this system, and have set themselves to its further development.

The outstanding result so far of this development is the construction of the Beardmore Inflexible—which is the largest aeroplane at present in existence in the world.

The Inflexible is a monoplane of about 150 ft. (46 m.) span, fitted with three Rolls-Royce Condor engines, each of 650 h.p., which weighs approximately 15 tons in flying condition.

Apart from steel fittings, the machine is built entirely of duralumin, and practically throughout this material is used in the form of flat, or nearly flat, sheets or plates of this material rivetted together to form the required sections, just as bridge-girders are built up from steel plates.

Any aeroplane of such size necessarily presents very serious structural problems of design, and that it should have been possible at all to produce a monoplane of the dimensions and weight of the Inflexible and of adequate strength in itself speaks highly for the skill of the Beardmore design staff, and for the soundness of the type of construction used.

The Inflexible was found to be in correct balance and under easy and complete control as she was first erected, so that Beardmore aerodynamic design is as sound as is their structural work.

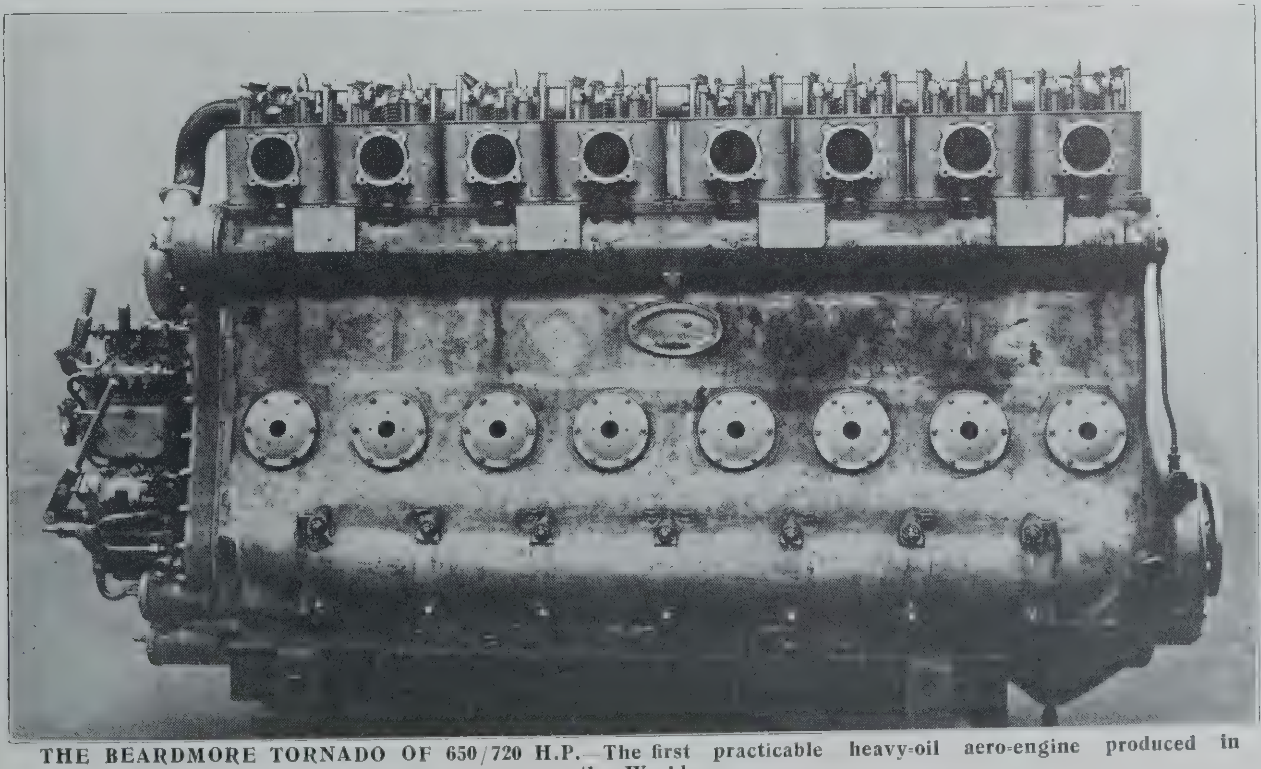
In their aero-engine department Sir Wm. Beardmore and Co. have been working along lines parallel to those followed in the aircraft department by developing types of aero-engine simpler in construction, more robust, and more economical than those up to now in service.

At present they have produced two six-cylinder vertical watercooled engines, running on petrol, known as the Cyclone and the Typhoon. The Cyclone is of the usual type and has its cylinders uppermost. The Typhoon is of the inverted type. These engines both have cylinders of $8\frac{5}{8}$ inch (219 mm.) bore by 12 inch (305 mm.) stroke and develop approximately 850 B.h.p. at 1,350 r.p.m. The weight of the Cyclone is 2,150 lbs. (985 kg.); that of the Typhoon is approximately the same. The compression ratio used is 5.25 to 1.

Both engines are actually capable of more than their rated output, and both of them run at speeds which permit the use without gearing of very efficient airscrews. Their weight per h.p. compares well with that of much more complicated types running at higher speeds, and both of them have remarkably low fuel consumptions, something like 0.48 lbs. (.218 kg.) per h.p. hour. This is of special importance for long-range aircraft, for on a ten-hour journey the saving in fuel-weight compared to that of a normal engine is the equivalent of a reduction of about $\frac{1}{2}$ lb. per h.p. in total weight of power plant.

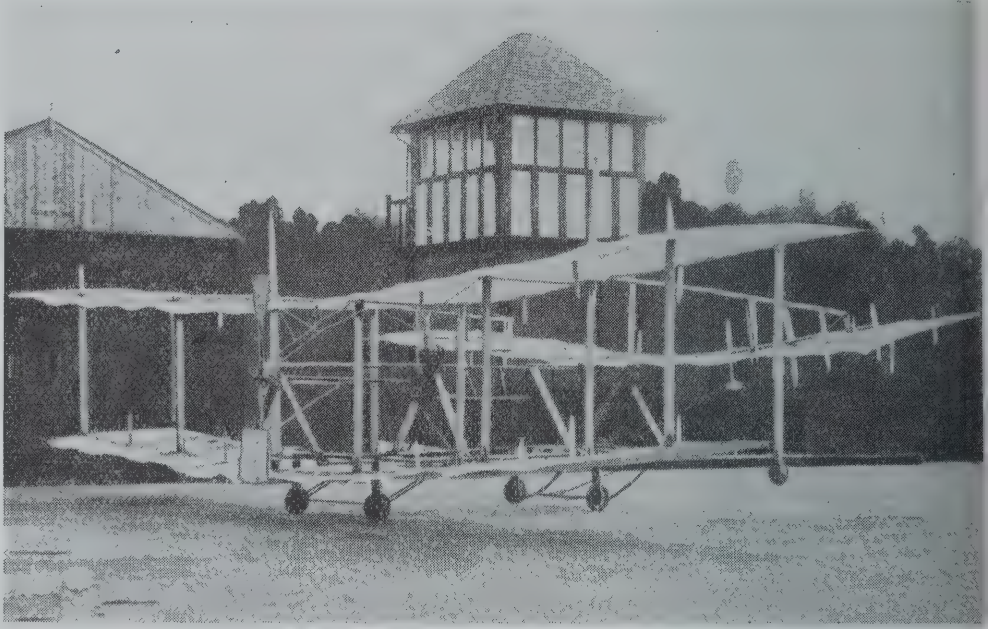
Even more remarkable in some ways is the Beardmore Tornado, which may be considered to be the first practical aero-engine to use heavy-oil fuel. In general design and construction it resembles the petrol engines already mentioned. It has, however, eight instead of six cylinders of a slightly smaller bore ($8\frac{1}{4}$ in. = 209 mm.), and its normal speed is 1,000 r.p.m. The normal output is 650 B.h.p., with a maximum of 720 B.h.p. The weight is 3,000 lbs. (1,360 kg.), giving a weight per h.p. rather high for aeroplane work, but one which is perfectly tolerable in airship work, particularly when allowance is made for the extremely low fuel consumption possible in this type of engine, and for the avoidance of the fire risk always attendant on the carriage of vast quantities of petrol.

This engine—which is of the compression-ignition type—is an achievement far in advance of any other attempt to solve the heavy-fuel problem for aircraft engines, and much may be expected of it in the future.



THE BEARDMORE TORNADO OF 650/720 H.P.—The first practicable heavy-oil aero-engine produced in the World.

THE LAST



THE first sentence in the history of British Aviation was written by A. V. Roe on that memorable 8th. June, 1908, when he made his first flight at Brooklands. The end of the War in 1918 closed the first decade—the first chapter—of this history. Avro training aeroplanes had been built in larger numbers than any other type of aeroplane in the world—had produced more pilots, better pilots, and were universally known and acclaimed wherever flying men met.

AVRO

A.

WORD.!

TO-DAY, ten years later, another chapter ends. The Avro maintains its high reputation, is still more universally used, and is yet unassailably the world's foremost training aeroplane. Nearly every military and naval air service in the world standardises Avro training aeroplanes. And now comes the last word in this chapter—the last word in training aeroplanes, the Avro "Gosport," worthy descendant of great forbears—comes to help perpetuate the "Gosport" tradition.

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THE BLACKBURN AEROPLANE & MOTOR Co. Ltd, Olympia, Leeds & Brough, Yorks.

The Lincock.

While this firm continue to specialise in the design and construction of highly efficient Coastal Defence types of aircraft, one of their latest and most interesting productions on the military side is a departure from this class of work in the form of a new single-seater fighter. This machine, known as the Lincock light single-seater fighter, very successfully achieves the aim of the manufacturer to produce a very much lighter, lower-powered and therefore less expensive machine than the average high-powered fighter of to-day, and at the same time to attain practically the same performance.

Fitted with an Armstrong Siddeley Lynx engine the Lincock is designed to carry two fixed machine guns, oxygen apparatus and a seat-type parachute and can also be equipped with wireless apparatus if required. The fuselage, which is of either wooden or all-metal monocoque construction, is of as small a cross-sectional area as possible, consistent with an allowance of ample space for the pilot, and possesses extremely fine lines; in fact, the design of the whole machine is remarkably " clean."

Beyond stating that the Lincock is a biplane with top and bottom planes of equal span and chord, the top plane being flat and built up as one unit and the bottom planes having a moderate dihedral angle, and that, on its first public appearance at a recent demonstration at Brough, it amply to fulfil the claims of its makers besides being exceptionally manœuvrable, further particulars may not be published.

The Iris II.

Two recently produced examples of Blackburn Coastal Defence aircraft are the Iris II Flying-Boat (3 Rolls-Royce Condor engines), designed for Coastal Patrol or Long-distance Reconnaissance, and the Ripon II Torpedoplane (Napier Lion engine), both of which are now in production for the Air Ministry.

The Iris II, the largest and fastest machine of its class in the world, has an all-metal hull arranged to accommodate a crew of five, extensive service equipment and armament with ample freedom of space and unrestricted communication from bow to stern. The bow cockpit is equipped with a machine gun, bomb sights and towing and mooring tackle and is occupied as an alternative station by the navigator.

The pilot's cockpit, immediately aft, has two seats side-by-side, and dual control; from the navigator's cockpit, behind the pilot's cockpit, the navigator has access to the pilot's cockpit, in order to act as second pilot, to the bow cockpit, or to the interior of the hull aft of his cockpit. Inside the hull is an interior station for the navigator, fitted with chart table, racks, drawers, etc., a wireless station and a station for an engineer-gunner. Further aft and well behind the wings is another gun-cockpit and at the stern is a tail defence gun-cockpit accessible through the interior of the hull.

The size of the hull enables the superstructure and engine units to be placed high above the water thus avoiding the risk of damage from heavy seas. Incidentally the boat runs exceptionally cleanly, handles exceedingly well on the water and takes off quickly.

With any one engine out of action the Iris II can take off and fly efficiently and with two engines " dead " she is capable of flying a considerable distance with only gradua loss of height. The fuel system is by gravity from three large tanks slung beneath the top planes, each tank being capable of supplying any one, two or all three engines, and no petrol pipes pass through the hull, thereby minimising the risk of fire.

Specification of the Blackburn Iris II.

Dimensions.—Span 95 ft. 6 in. (29.1 m.), Length 67 ft. 1 in. (20.6 m.), Height 24 ft. 6½ in. (7.47 m.), Wing area 2,460 sq. ft. (228 sq. m.).

Weights and Loadings.—Weight empty 18,874 lbs. (854 kg.), Weight loaded 27,000 lbs. (12,280 kg.), Wing loading 11 lbs./sq. ft. (54 kg./sq. m.), Power loading 13.9 lbs./h.p. (6.3 kg./h.p.).

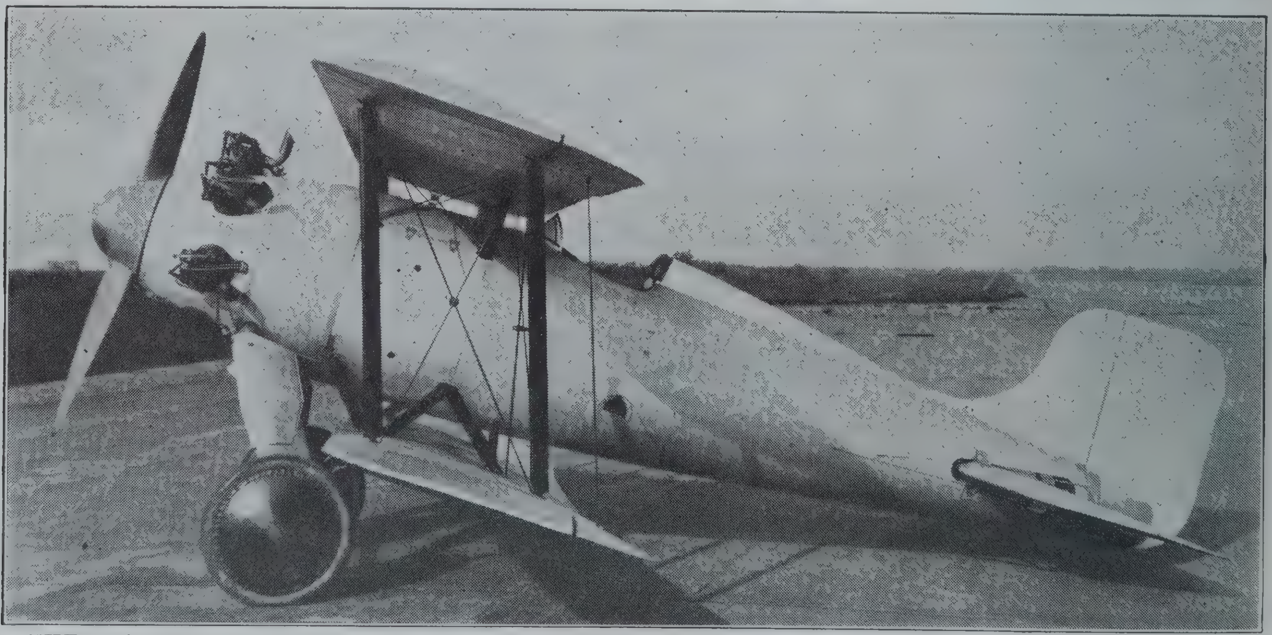
Performance.—Max. speed at sea level 118 m.p.h. (190 km.h.), Speed at 10,000 ft. (3,050 m.) 103 m.p.h. (166 km.h.), Minimum speed 57 m.p.h. (92 km.h.), Climb at sea level 700 ft. (213 m.) per min., Service ceiling 12,800 ft. (3,900 m.), Endurance at 92 m.p.h. (148 km.h.), 10 hours.

The Ripon II.

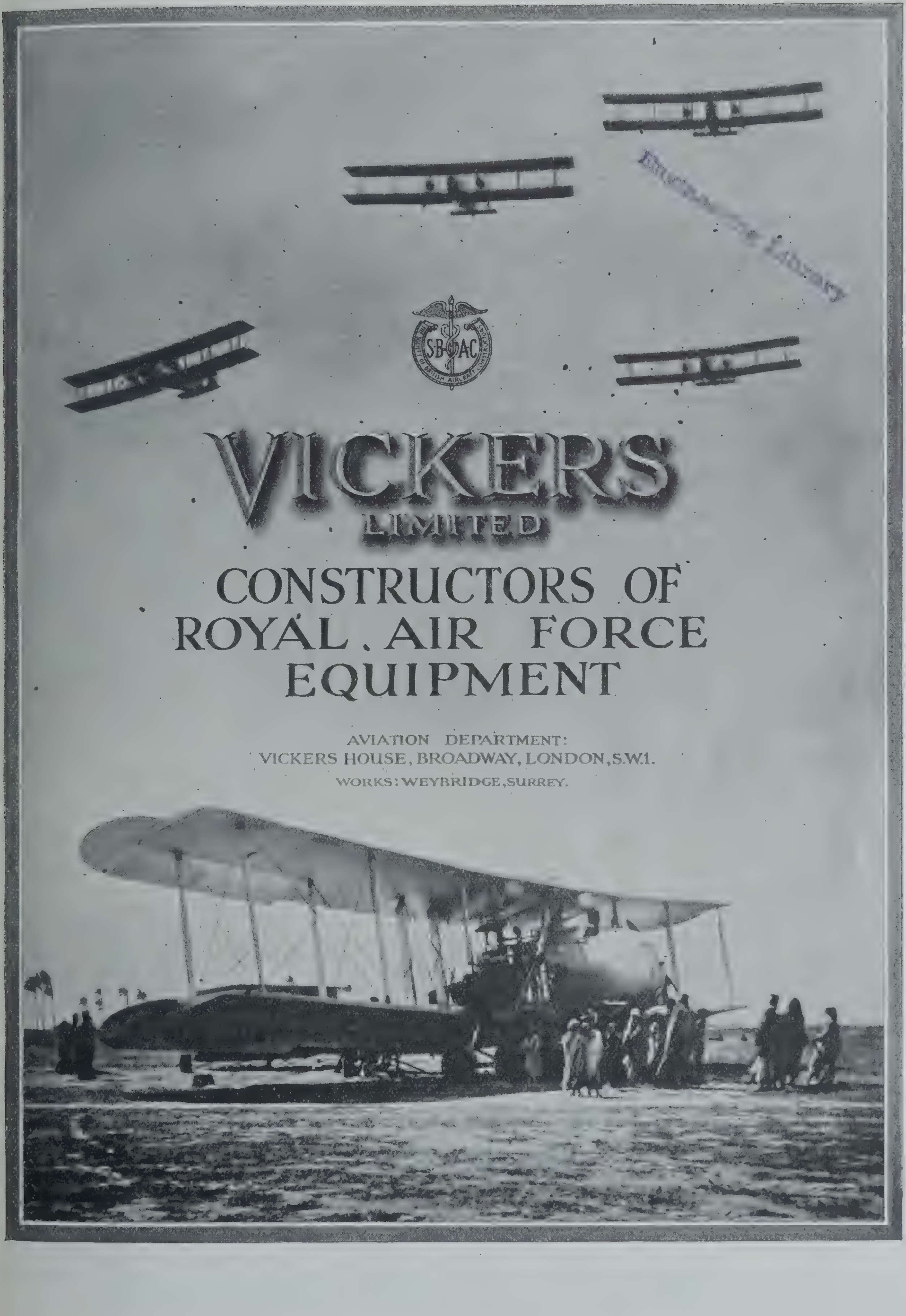
The Ripon II Torpedoplane constitutes a distinct advance on the Blackburn Dart, which has hitherto served the Royal Air Force as their standard type of torpedoplane. Unlike the Dart it is a two-seater. The second cockpit accommodating an Observer-gunner with a movable machine gun and wireless apparatus, so that the machine is capable of self-defence and is independent of escort. The Ripon II is also designed for the alternative duties of Bombing or reconnaissance and for operation from land, carrier-ship or sea bases, the wheel and float chassis being interchangeable. For Bombing operations the Observer is provided with bomb fusing and release controls and a bomb-sight in a prone bombing station with outlook through the under side of the fuselage.

Full particulars of this machine are not available but it is worthy of note that no less than 45 per cent. of the gross weight is available for load. According to the purpose for which it is desired to put the machine either a heavy armament load can be carried (namely a torpedo load of nearly 2,000 lbs.) with a relatively small fuel load or the armament load can be reduced (for Reconnaissance purposes) and the fuel load considerably increased to give an extended range. Performance figures may not be mentioned, but it can be said that, carrying a load of 1⅓ tons, the speed of the Ripon II is much more than 120 miles per hour.

The Ripon II is constructed on somewhat similar lines to the Dart though from the point of view of body resistance the shape of the fuselage is improved beyond comparison. The wings are designed to fold back for convenience of stowage and are, incidentally, of single-bay biplane form. The wheel chassis, like that of the Dart, is of the divided type, but is a simpler structure and sprung by two long oleo struts. Needless to say the water chassis embodies two all-metal floats and attaches to the same main joints.



THE BLACKBURN LINCOCK.—A light, inexpensive high performance single-seat fighter with the 215 h.p. Armstrong Siddeley Lynx engine.



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Engineering Library

BOULTON & PAUL Ltd., Norwich.

As an engineering firm with a very wide range of activity other than that of their aircraft department, Boulton and Paul Ltd. have been able to take a long view of the future prospects of the aircraft business, and they have in consequence devoted their attention during the past few lean years very largely to work of a type intended rather to provide a sound foundation for future developments than to securing an immediate output yielding a maximum of revenue.

It is a matter of common knowledge that to a very great extent these efforts have been directed towards the development of a practical system of metal construction, and that, as has been demonstrated conclusively by a variety of types of all-metal machines of their design and manufacture, they have attained a remarkable technical success in this direction.

It is not so generally known that this success is by no means confined to the purely technical side, and that to-day they are in a position to produce all-metal aircraft which are not only structurally lighter and aerodynamically as efficient as machines of the timber-framed type, but are in addition easier and cheaper to produce in reasonable quantities than are the majority of machines of the same class, whether they be of metal or of timber, produced by other methods than those which they have developed.

The difficulties which have had to be overcome to reach this stage are manifold. There are the purely technical difficulties which arise because of the very thin sections which must alone be used in metal structure to keep to within the permissible limits of weight. Having developed types of thin-walled spars and the like structurally efficient there were the practical workshop difficulties of producing numbers of these intricate sections accurately, cheaply, and of uniform and high quality. Finally there are problems of the actual design of the aircraft themselves, so that the maximum possible advantage might be taken of the characteristics of the materials and types of section evolved.

Thus the work has involved research and experiment in many diverse fields, ranging from the mathematical theory of the strength of various types of members, through problems of metallurgy and chemistry, detail of workshop procedure, in addition to those problems of aerodynamics which face all aircraft designers.

The type of metal structure now produced by Boulton and Paul Ltd. uses members rolled or drawn from high-tensile steel-strip, combined with members of similar type produced in duralumin. By careful design, and by the use of the two alternative materials according to the intensity of stress which is encountered in the member in question, a relatively small number of standard sections, which can be produced in quantity and placed in stock suffices to build up the structural members for a wide range of differing types of aircraft.

By carefully planning processes of jointing and assembly the fabrication from these standard sections of a complete aircraft structure has been made a rapid and almost automatic process, calling for a minimum of relatively inexpensive labour.

Since the end of the War Boulton and Paul have produced a whole series of types of high performance twin-engined bombers. All these machines have been notable for their excellent performance, their capacity to carry heavy military loads on relatively small dimensions, and each successive type has shown an improvement on its predecessor in these respects. This steady improvement has been in part the result of aerodynamic refinement, but probably in a greater degree of an increasing efficiency of structural design, leading to a steady reduction in the dead-weight and over-all dimensions needed for a given military load.

The latest of this series of Boulton and Paul twin-engined bombers—the Sidestrand—was described in considerable detail in THE AEROPLANE of March 28, 1928, and from this description a good deal more information than can be given here may be gathered as to the details of this firm's methods of construction. Carrying a total disposable load (including fuel, for about 750 miles' range) of very nearly 4 lbs. per h.p., this machine has a speed at 10,000 ft. of 129 m.p.h., and is undoubtedly one of the most formidable of bombing aircraft as yet in existence.

The difficulties of metal construction tend to decrease as the size of machine to which it is applied is increased. The most convincing evidence of the high stage to which Boulton and Paul have carried the art of metal construction is perhaps to be found in the latest of their products which it is as yet permissible to mention.

This is the Partridge—a single-seat fighter with the Bristol Jupiter engine. Details, dimensions, and performances of this machine may not yet be published.

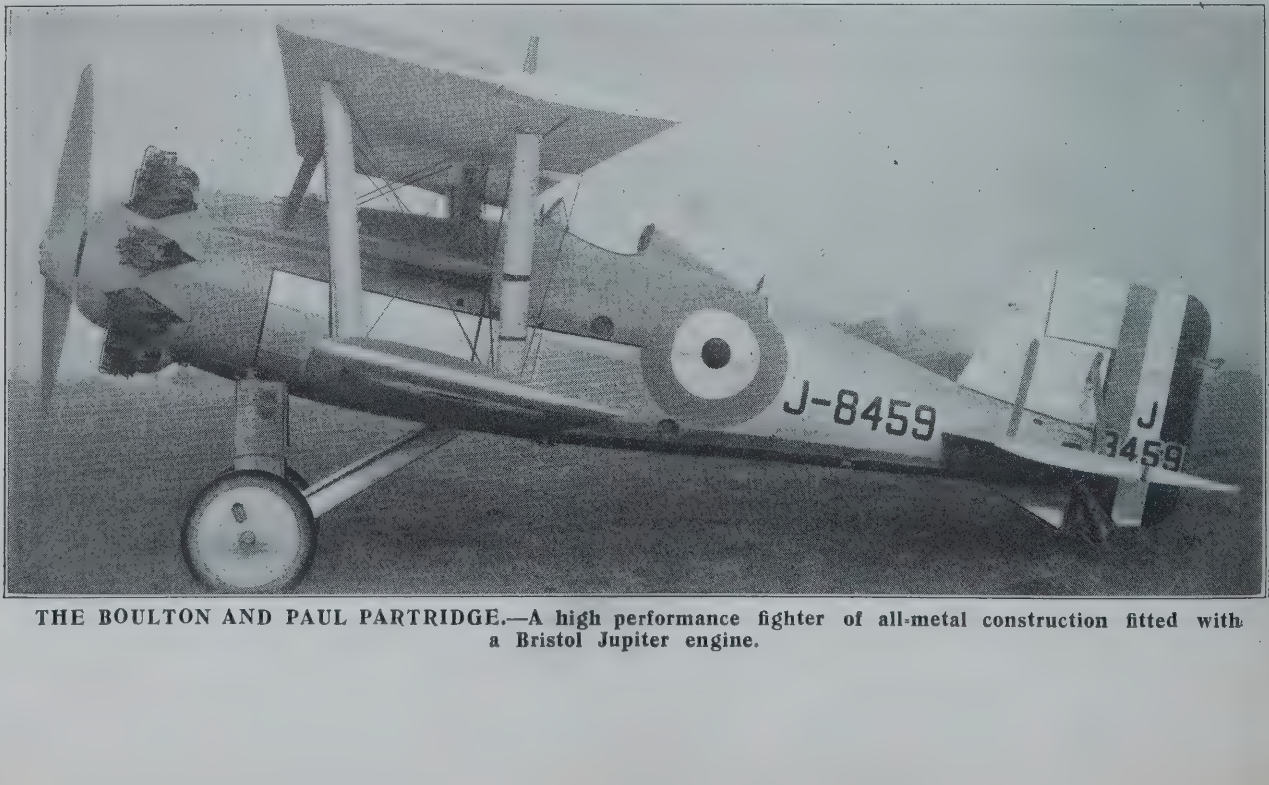
It was designed originally for an engine of higher power than is actually fitted, to carry fuel for that engine for a longer range, and to have higher load factors than are required by the current Air Ministry specifications for this class of machine. For these reasons it is somewhat larger and heavier than the majority of single-seat fighters fitted with its present engine.

Despite this handicap, it has an amazing performance—one not exceeded by any other fighter of equal power yet tested in this country—and it can profitably be sold at a price which is distinctly below the average for machines of this class and power hitherto produced.

On this evidence it seems to be proved conclusively that metal construction of the Boulton and Paul type can be used to produce cheaper and better military aircraft than can be produced by apparently simpler and cheaper methods. Moreover, there is not the slightest room for doubt that their methods of manufacture are such as lend themselves to rapid production on a large scale, with a steady decrease in the cost per machine as the numbers produced increase.

Experience with machines of this type have proved that they are robust in service, that troubles caused by corrosion and adverse climatic conditions are not to be feared, and that in crashes which would mean a complete write-off of any timber-framed machine, the Boulton and Paul type will often escape with local damage which is often quite simply repairable even in the field.

It is also a point worthy of remark that the accuracy of manufacture attained in the production of components ensures complete interchangeability of parts, so that damaged units in Boulton and Paul machines may always be replaced by a spare without the need for fitting and usually by unskilled labour.



THE BOULTON AND PAUL PARTRIDGE.—A high performance fighter of all-metal construction fitted with a Bristol Jupiter engine.

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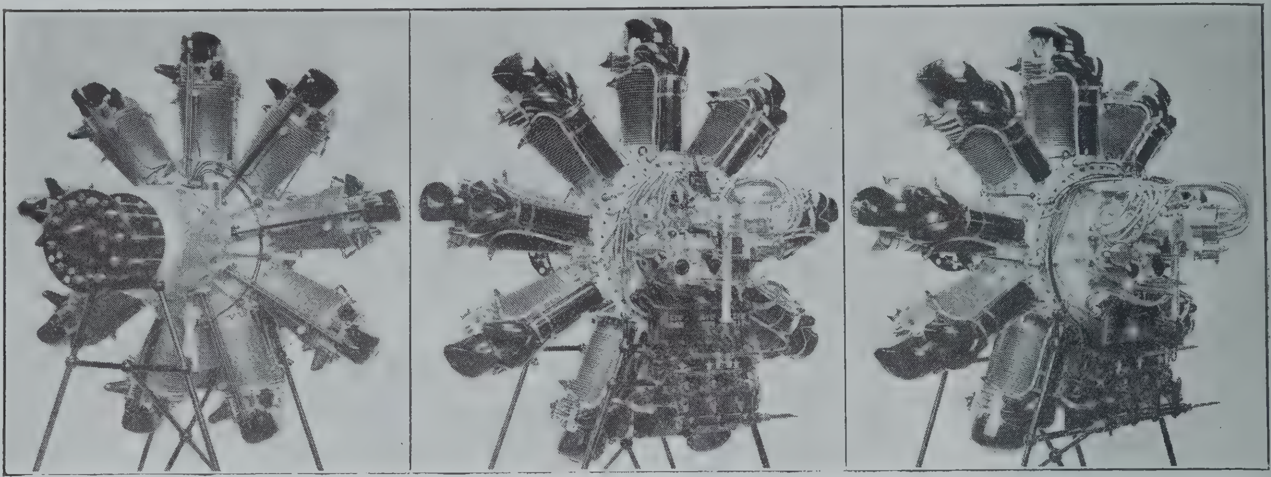
THE BRISTOL AEROPLANE Co. Ltd., Filton, Bristol.



THE BRISTOL JUPITER ENGINES.—On the left the Jupiter series VIII with reduction gear. Centre, rear view of the series VI type, and right, a similar view of the series VII with gear-driven supercharger. It is noticeable that the supercharger takes up less room than the standard induction system.

BRISTOL ENGINES.

The Bristol Aeroplane Co. Ltd., who are among the oldest members of the British Aircraft Industry, have achieved world-wide fame as the designers and manufacturers of the Bristol engines. Of these the best known of course is the Bristol Jupiter, a nine-cylinder air-cooled radial, which is now pretty certainly the most widely used aero-engine in the world to-day. The Jupiter type of engine is being built under license in France, Italy, Germany, Switzerland, Belgium, Yugo-Slavia, Japan, and by now probably in other foreign countries as well. In these and other countries as in Britain the Jupiter is being used for machines of all classes, civil and military, and has achieved a predominant position owing to its low weight per h.p., and its unfailing reliability, and excellent economy.

Though all Jupiter engines are essentially of the same design the Bristol Co. have been able within that design to provide a whole range of engines of varying characteristics suitable for a wide diversity of service.

Of this range three engines, the Jupiter Series VI.A, VI.AM and VI.AL are all of the direct drive type, differing only in compression ratio. The Series VI.A with compression 6.3 to 1 is suitable for high performance military machines operating normally at 15,000 ft. or over. This engine develops a maximum output of 455 b.h.p. at 5,000 ft.

The Series VI.AM with a compression of 5.3 to 1 is suitable for general service military machines, to operate at moderate altitudes, and will develop a maximum of power at sea-level on normal fuel. The normal output is 440 b.h.p., with a maximum of 485 b.h.p.

The Series VI.AL with a compression ratio of 5.0 to 1 is designed for commercial service. It is stripped of the equipment for driving a gun-synchronising gear, and is rated at 420 normal 460 maximum b.h.p. This particular type of engine has proved itself to possess an exceedingly long life between overhauls, and is consequently an engine economical to maintain in service. All these engines weigh 720 lbs. bare, or 1.56 lbs. per b.h.p. in the case of the VI.AL which has the lowest rated output.

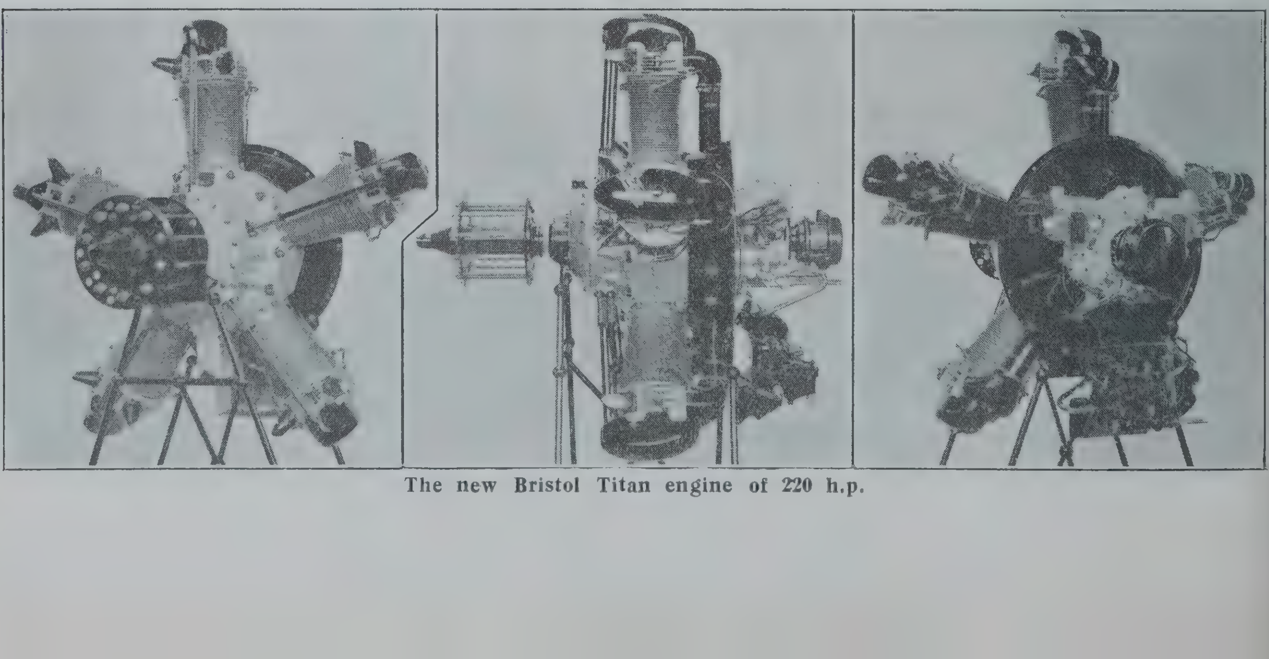
Next in the range is the Series VII. This differs from the Jupiter VI type in that it is fitted with a gear-driven supercharger. This supercharger permits the engine to develop the normal output of 420 b.h.p. at 12,000 ft. above sea-level, and a maximum of 440 b.h.p. at 15,000. The engine is practically identical in detail with the Series VI type except that the supercharger is fitted in place of the standard Jupiter induction spiral. For all machines required to operate at high altitudes this engine gives a very great increase in performance. It weighs 760 lbs. (40 lbs. more than the Series VI), and at 12,000 ft. gives about 80 more b.h.p. than the unsupercharged engine of the same compression (5.3 to 1).

The Series VIII, IX and XI are practically identical with the Series VI.A, VI.AM, and VI.AL, except that each is fitted with a Bristol reduction gear of the Farman self-centralising bevel type giving an airscrew speed one-half that of the crankshaft, and that the engines themselves are arranged to develop their normal output at a speed of 2,000 r.p.m. instead of the 1,700 r.p.m. of the Series VI type. As a result of this increase in speed approximately 40 extra b.h.p. is obtained from each engine. At the same time a marked improvement in the airscrew efficiency can usually be obtained, and there is a smaller increase in the resistance of these parts of the aeroplane to which these engines are fitted which is within the slipstream.

The increase in performance which results from the use of this reduction gear is—particularly in relatively heavily-loaded machines—out of all proportion to the increased h.p. of the engines themselves.

The Series VIII engine is a high-altitude service type with 5.8 compression, rated at 440 b.h.p. at 4,000 ft. The Series IX is a normal service type, compression 5.3 to 1, giving 485 normal h.p. at sea-level. The Series XI is the commercial type, 5 to 1 compression, of 460 normal b.h.p. These three engines all weigh 880 lbs. which for the lowest rating, of 460 b.h.p., is 1.9 lbs. per h.p.

The type of gear used on this engine is remarkably silent and efficient, and extremely reliable and long-lived, and there can be little doubt that for all the heavier classes of aircraft it will soon be the rule to use engines so fitted.



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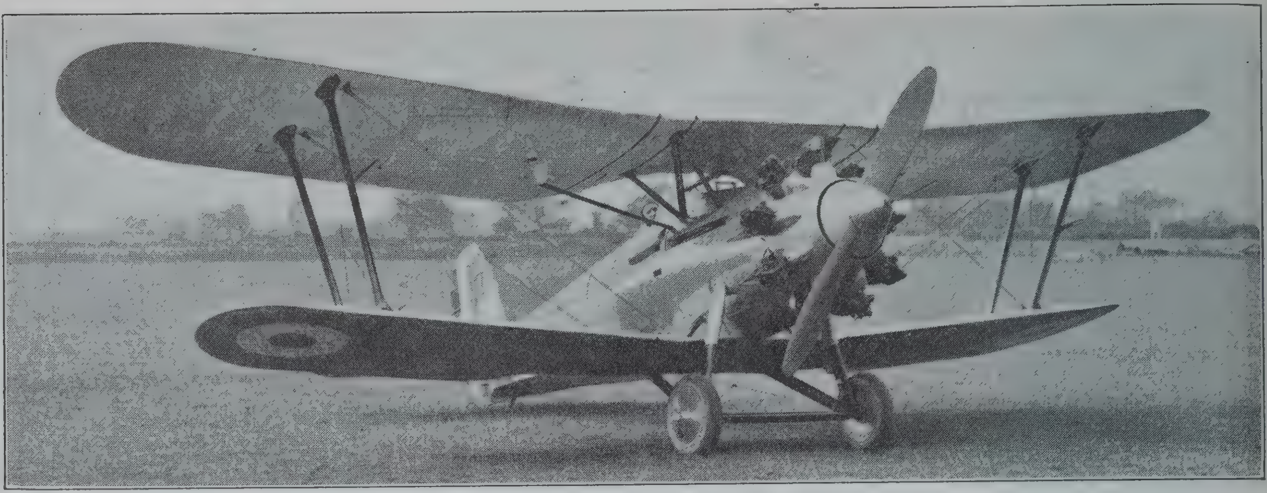


The Bristol Single-seat Fighter (Bristol Jupiter engine).

The general characteristics of the Jupiter engine are now so well known that it is unnecessary to recapitulate them here, the more particularly as a complete range of these engines will be exhibited at the forthcoming Paris Show.

Complete data, together with accounts of the most recent modifications introduced into these engines will be recorded in the reports from that Show.

The most recent addition to the Bristol range of engines—known as the Titan—is a five-cylinder engine, using cylinders identical with, and having a multiplicity of components interchangeable with, those of the Jupiter. This engine is made in two types, the Series II with a compression ratio of 5, rated at 200 b.h.p. normal and 220 b.h.p. maximum for commercial service, and the Series III, compression 5.3 to 1, rated at 220 b.h.p. normal, and 240 b.h.p. maximum, for use in Service machines.

Apart from the smaller number of cylinders, and the use of a centrifugal fan distributor in place of the Jupiter spiral induction system, the well-tried Jupiter construction has been followed throughout in this engine. As the engine is rated rather more lightly than the Jupiter VI type of equal compression, and runs at the same speed, its reliability and its long life may be taken for granted.

It is of a size for which there is a large and growing demand, both for the lighter types of commercial machines, and for advanced training and the like Service aeroplanes, so that the Titan seems destined to find many uses in the near future.

This engine is also to appear at the Paris Show, and the opportunity thus afforded will be taken to describe it in full.

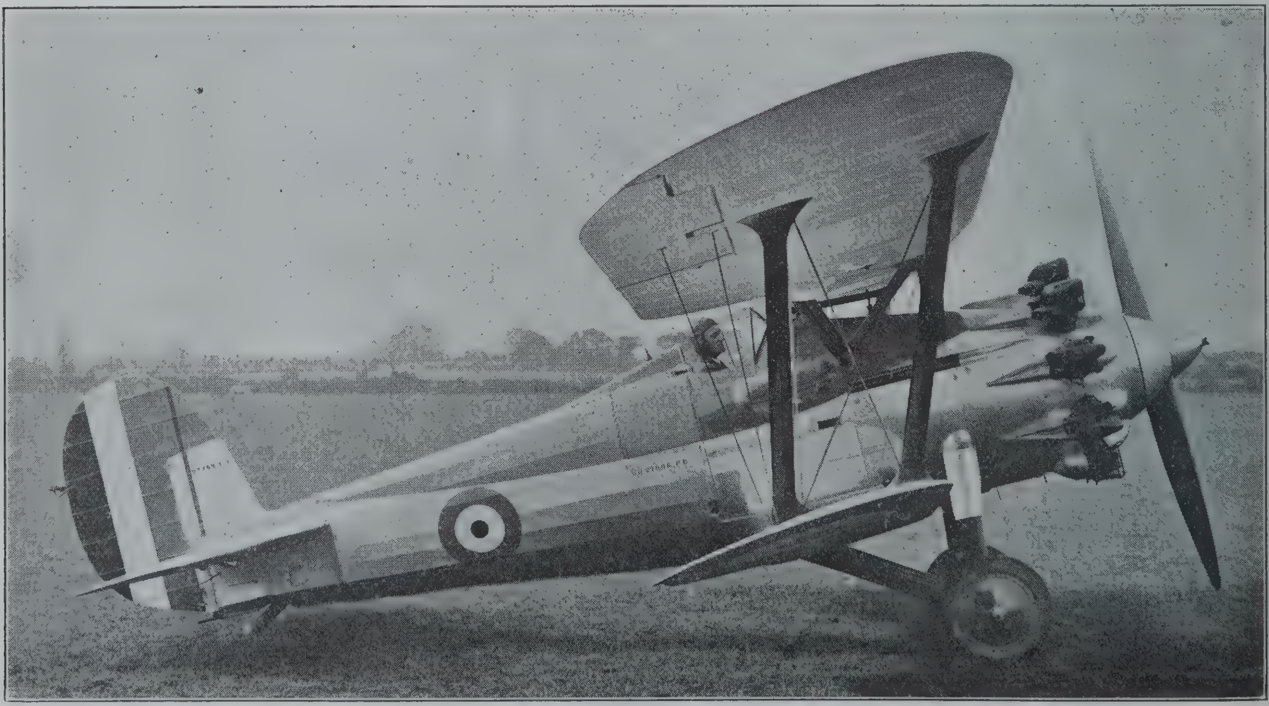
BRISTOL AEROPLANES.

The many outstanding successes achieved of recent years by Bristol engines has rather tended to overshadow the excellent work carried on by the aircraft department of this company. To some extent this effect has been accentuated by the fact that the aircraft works have been very largely engaged rather in the development of the process of metal construction than in production of new aeroplanes in quantity.

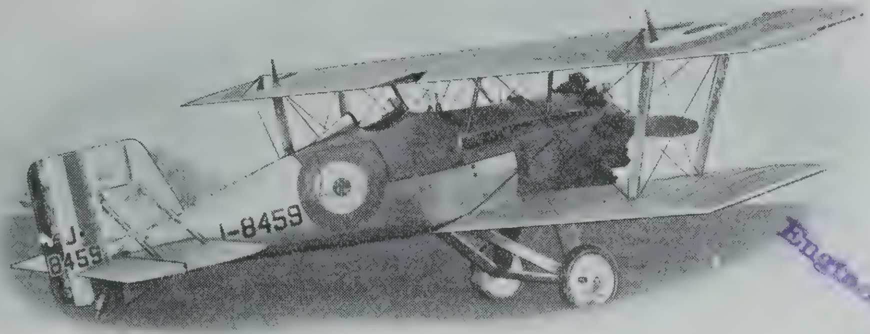
The present gives an excellent opportunity for drawing attention to the latest result of this development work which one may as yet mention. This is the Bristol single-seat fighter, fitted with a Bristol Jupiter engine.

This machine is, except for fairings, and a few minor fittings, made of aluminium, and for the fabric covering, entirely built of steel. This machine carries fuel for 2½ hours or a little more, two synchronised guns, 1,200 rounds of ammunition, oxygen apparatus, parachute, wireless, and electric lighting and heating gear—making a total military load of 1,135 lbs. It has a speed at 10,000 ft. (3,050 m.) of 175 m.p.h. (267 km.h.), at 20,000 ft. (6,100 m.) the speed is 172 m.p.h. (262 km.h.), it climbs to this height in 12.1 minutes, and it will reach 29,200 ft. in 31 minutes. No authenticated performance figures yet published for a fully-equipped service machine show so high a speed at, or so rapid a climb to, extreme heights.

The Bristol Single-Seat Fighter is also appearing at the Paris Show. It may be unfortunate that it should be the only British exhibit of its class, but it is at least comforting to know that the quality of British design and construction will be so worthily represented.



Three-quarter rear view of the new Bristol Single-seat Fighter of all-metal construction.



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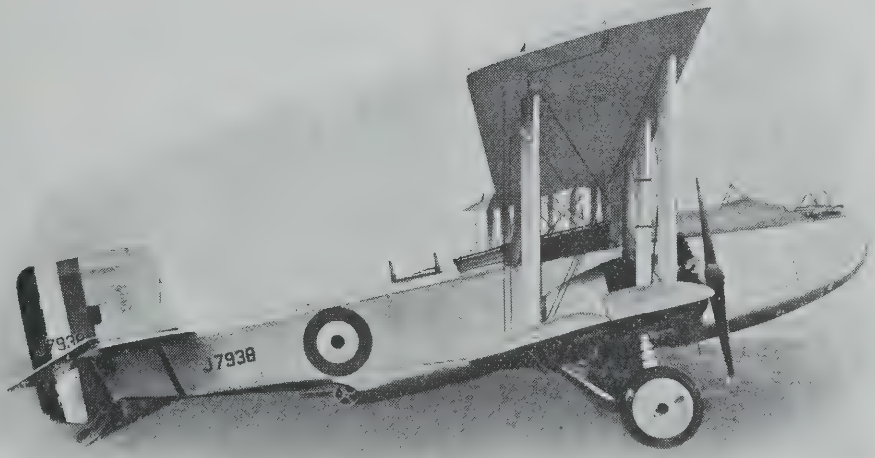
The Boulton & Paul "Partridge" single seater fighter of all-metal construction.



Boulton & Paul All-metal "Sidestrand" Day Bomber. Chosen recently after exhaustive tests as a Royal Air Force Service Machine.

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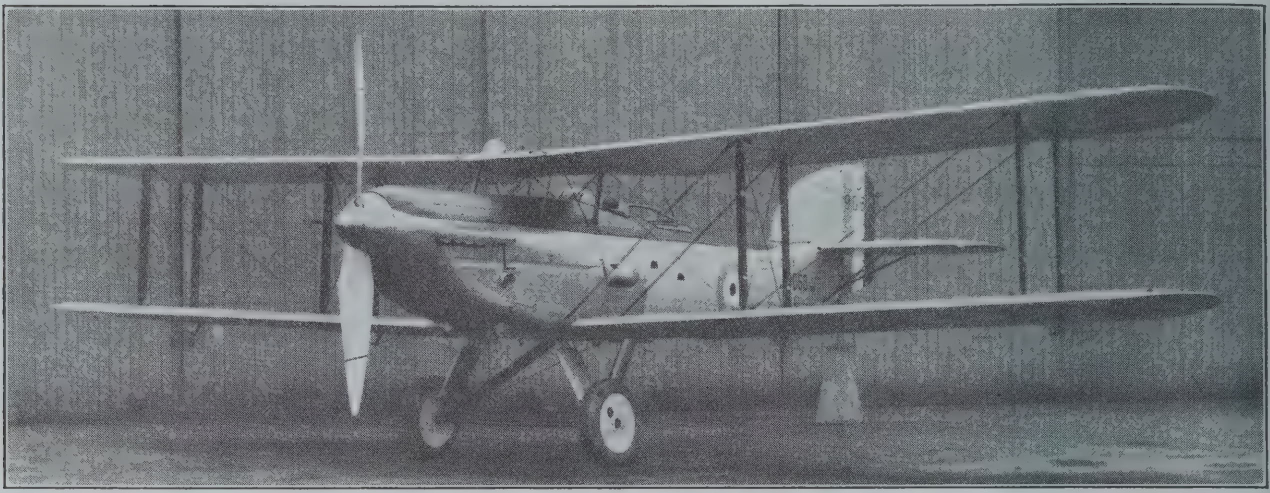
THE FAIREY AVIATION Co. Ltd., Hayes, Middlesex.



A FAIREY III.F TWO-SEATER OF THE GENERAL PURPOSES TYPE.—This machine is of all-metal construction.

The Fairey Aviation Co. Ltd. must be among the most fully occupied of the world's aircraft producing firms, for its works at Hayes seem always to be fully occupied in the regular manufacture of standard types of aeroplanes in series.

The firm undoubtedly owes this success largely to the skill with which it has studied the needs of the market open to it, and to the way in which it has consistently produced aircraft, which are not only excellent flying machines from the purely technical point of view but which are thoughtfully and minutely equipped to fit them to perform the service for which they are intended with the maximum of efficiency.

The Fairey III.F, which is now the most widely known and used of Fairey aircraft, is probably the best example of the attention to details which characterise this firm's products. Seen in its complete condition, this type of machine gives the impression of an exceedingly clean and well-streamlined machine, from which an excellent performance would naturally be expected. Inspected in detail, it proves to be a machine in which this characteristic of cleanness has been achieved in conjunction with the provision of an amazingly complete equipment, spaciously and conveniently arranged. And the machine itself is found to be simple and robust in construction, easily accessible in all its parts for inspection and maintenance, and moreover easy and pleasant to fly even when carrying more than its normal Service load.

The III.F is adaptable to a variety of services. It is at present being made in two main types, a two-seater " General Purposes " machine, and a three-seater " Naval Reconnaissance " type. Either type is capable of serving in a wide variety of operations, and as wheel or float undercarriages are completely interchangeable either type may be used from the land or from the water, and the minimum of time and labour is required to change from one to the other type of undercarriage.

Apart from the seating arrangements, the two varieties of III.F differ little one from another. All machines are now of metal construction, using steel for the main members, and as every component down to and including such items as cowling plates are jig-built complete interchangeability of spares is attained.

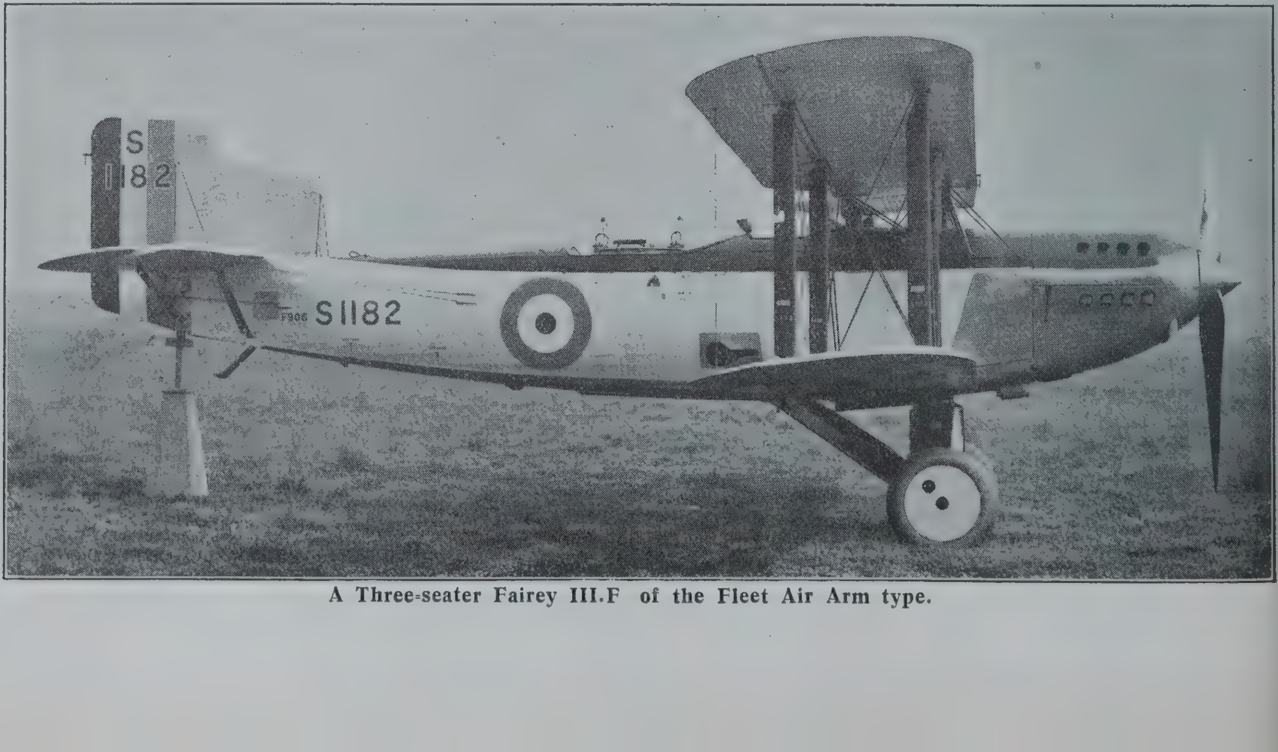
The equipment of these machines is extraordinarily complete and well arranged. Any attempt even to catalogue it would occupy more space than is available here, and therefore it is necessary only to mention a few typical examples to show the care that has been spent on its lay-out.

The pilot's flying controls—of the stick type—are fitted with cams arranged to give a lower gear between stick and control surfaces at high speeds, thus making the machine less tiring to fly and preventing undue sensitiveness at the upper end of the speed range.

The fuel system comprises an engine driven fuel-pump supplying petrol direct to the carburettors. To guard against failure of this pump a hand-pump is fitted. This is so arranged that it is not even necessary to turn a petrol-cock to bring it into action. It is always in circuit, and to put it into service it is necessary only to pump.

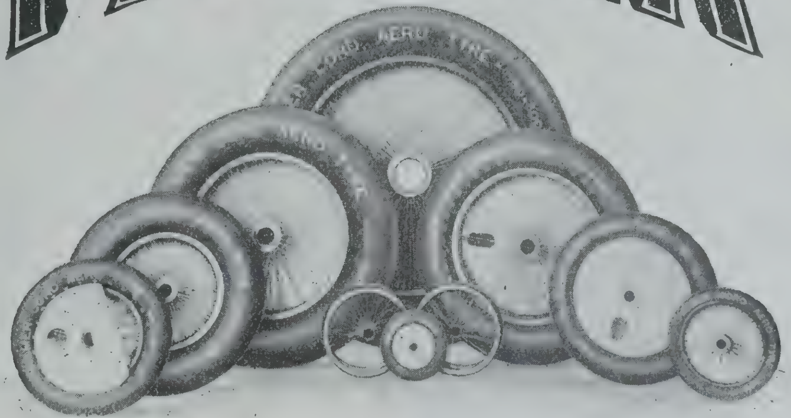
Provision is made for using a camera from the rear cockpit of both the General Purpose and the Naval Reconnaissance machines. In the latter a full-sized Eagle type camera is provided for, and in the General Purpose type a smaller hand-operated type may be fitted. By the use of a special type of wireless equipment these cameras may be used without the withdrawal of the wireless gear.

Throughout similar forethought has been taken, and the result is that the Fairey III.F is a machine which not only carries an exceedingly heavy military load and develops therewith a remarkable performance, but it is a machine which allows its crew to perform any of the many duties for which the type is suited efficiently and with the maximum of ease.



A Three-seater Fairey III.F of the Fleet Air Arm type.

PALMER



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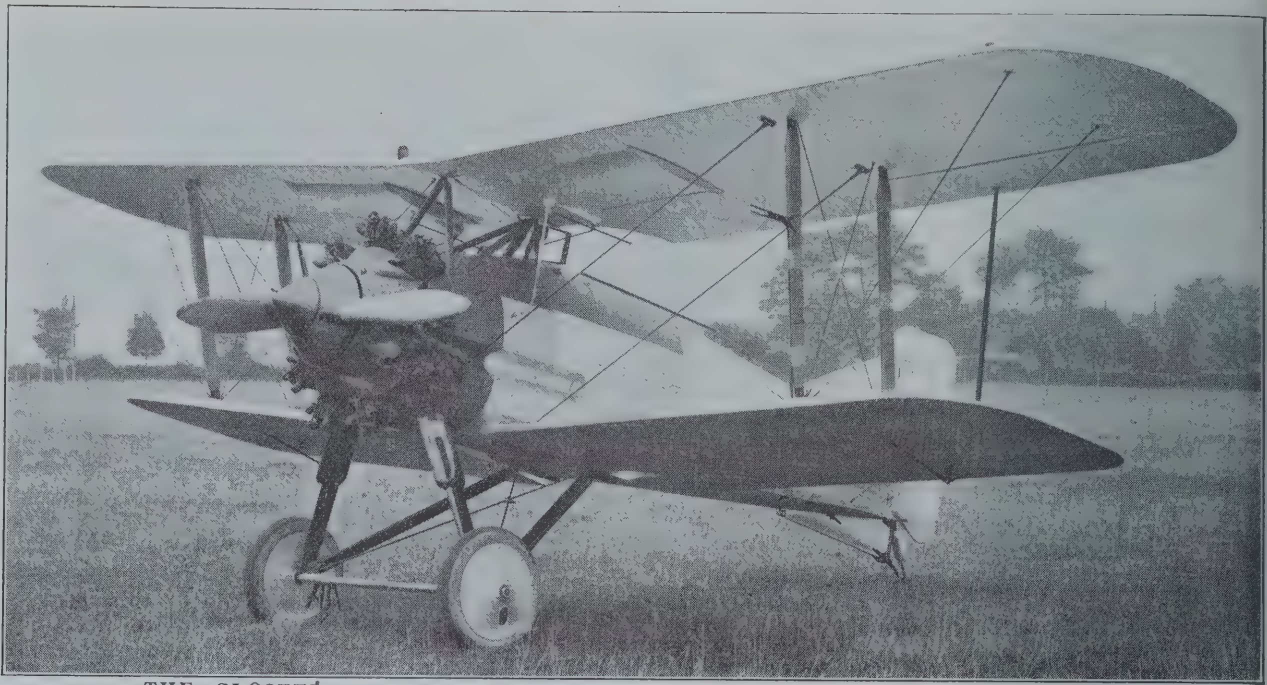


THE GLOSTER GAMBET.—The standard deck-landing fighter of the Japanese Navy.

The Gloster Aircraft Company in 1921 produced a machine known as the Bamel purely for racing purposes. This was the first British machine to achieve a speed of 200 m.p.h., and it was the forerunner of a series of very successful Gloster racing machines, which so far ends with the Gloster IV, built for the 1927 Schneider Trophy race, which is the fastest biplane that has yet been built in the world.

Of the two machines here shown, one the Gloster Gambet, is a high-performance deck-landing single-seater, which after extended trials in competition with machines of other makes, has recently been adopted by the Imperial Japanese Navy as their standard Service machine of this type.

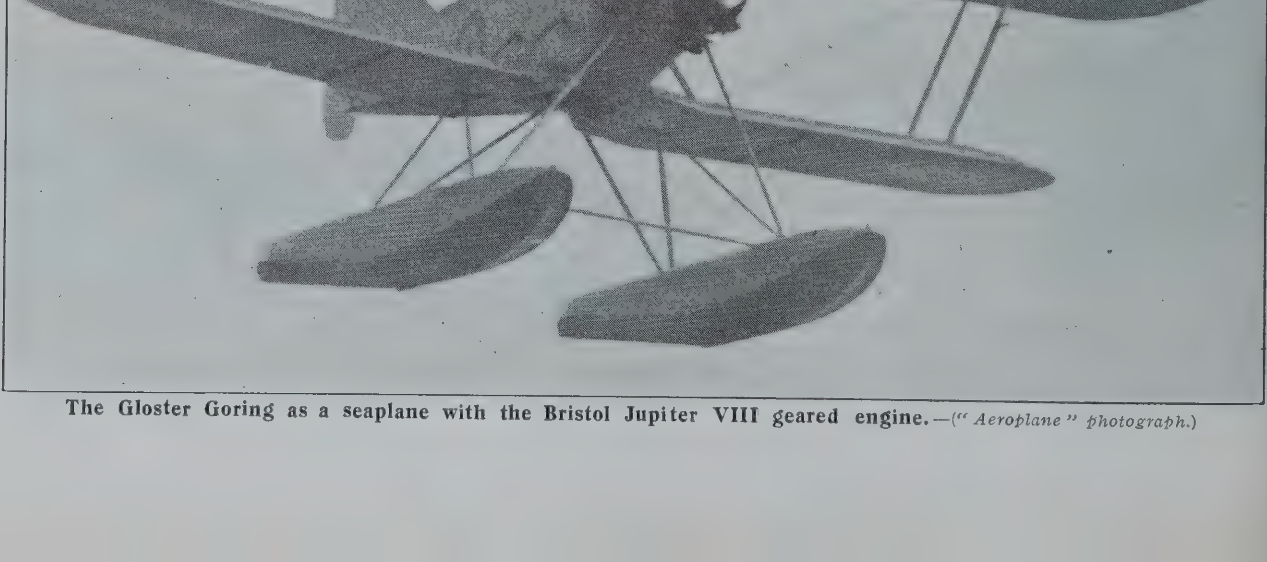
The Gambet is fitted with the Bristol Jupiter Series VI engine of 420 h.p., and the installation of this engine in the machine is a notable example of how the air-cooled radial engine of high power may be cowled-in cleanly.

The essential characteristics of this machine are that it carries a very complete military equipment, including two synchronised guns, with ample ammunition, racks for four 20 lb. (9 kg.) bombs, wireless, and the like, together with fuel for 3¼ hours' flight at 15,000 ft. (4,570 m.), has ample factors of safety throughout, and combines a landing speed low enough for safe operation from an aeroplane-carrier ship with an all-round performance equal to that of the majority of single-seaters which are not thus limited in landing speed.

The Gambet is compact—the maximum span is only 31 ft. (9.7 m.)—all essential working parts, including the engine, are exceedingly accessible, and the machine is extremely manœuvreable. It has a speed of 152 m.p.h. (245 km.h.) at 5,000 ft. (1,525 m.) and climbs to that height in 3 min. and to 10,000 ft. (3,050 m.) in 7 mins.

The other machine illlustrated is the Goring, a two-seater high-performance bomber, fitted with the Bristol Jupiter Series VIII geared engine. This machine may be fitted either with wheels or with floats, and may be adapted to carry a torpedo. The characteristic Gloster cleanness of design is obvious in the illustration, and that this is not a matter of appearance alone is borne out by the fact that the machine carries fuel for 6½ hours at 15,000 ft. (4,570 m.), a crew of two, two machine guns and ammunition, and 690 lbs. of bombs at a speed of 136 m.p.h. (219 km.h.) at 4,000 ft. (1,220 m.), and 133 m.p.h. (214 km.h.) at 10,000 ft. (3,050 m.), climbing to the latter height in 13 mins. as a land machine thus loaded.

Fitted as a seaplane, the speed at 10,000 ft. falls only to 128 m.p.h. (206 km.h.), and the time to climb to this height increases only to 14.2 minutes.



The Gloster Goring as a seaplane with the Bristol Jupiter VIII geared engine.—(*"Aeroplane" photograph.*)

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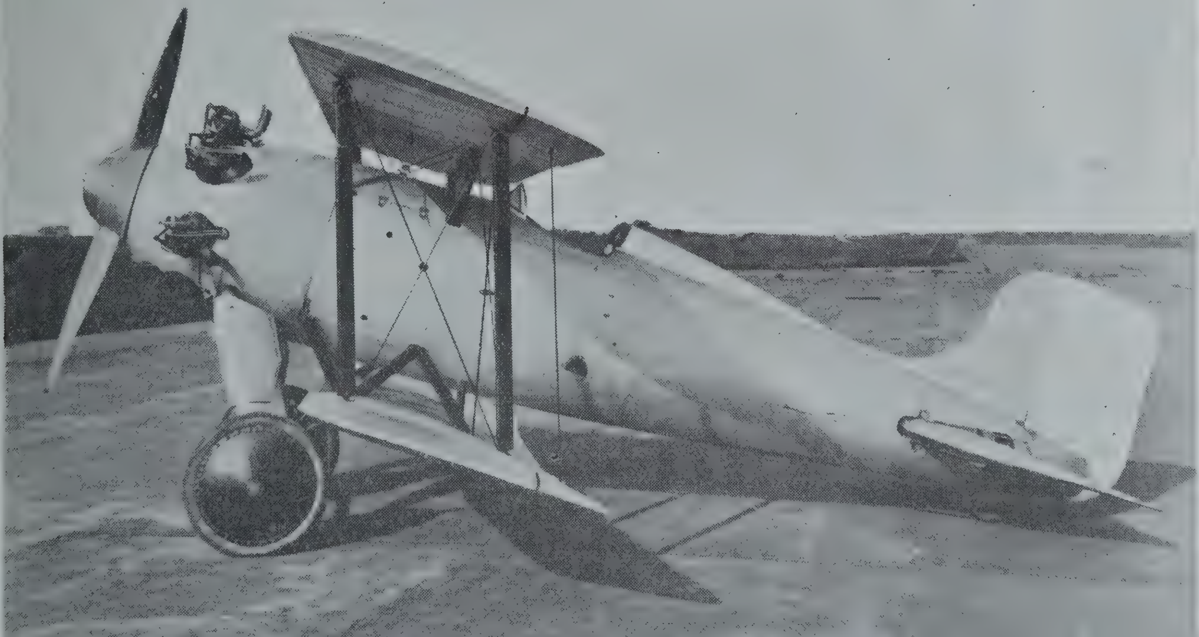
"The Aeroplane," May 23, 1928.



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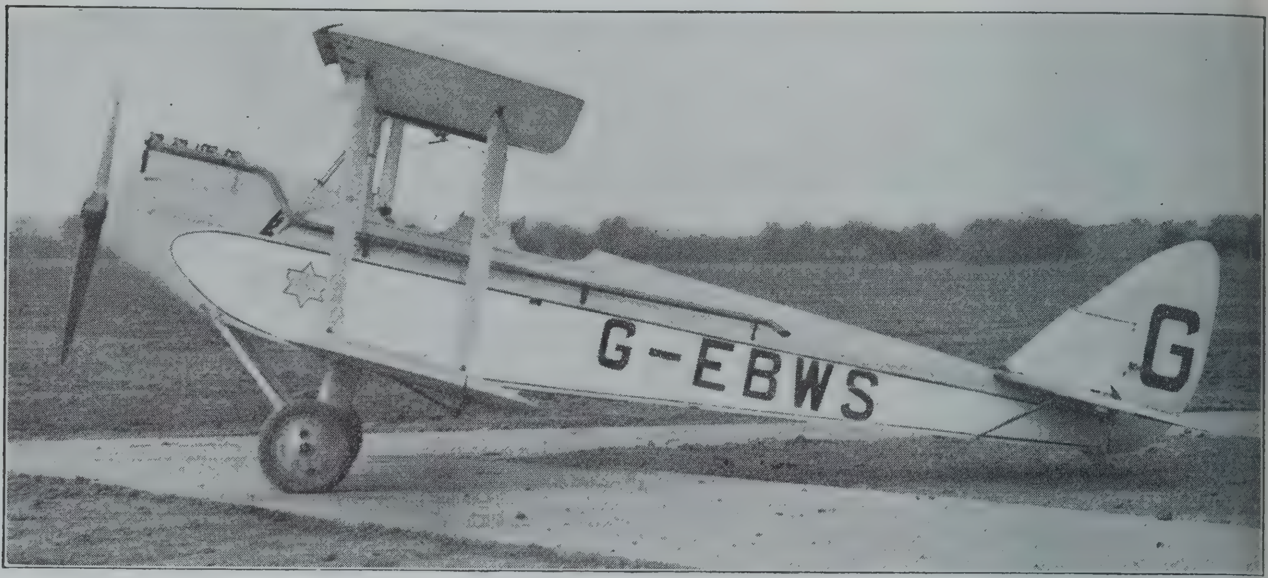


A De Havilland Moth (Cirrus Mk. II engine) fitted with slotted wings.

The reputation of British-built aircraft for excellence of material and workmanship, for strength, and for excellent flying qualities stands high throughout the World. The de Havilland Moth is at the present time probably the most widely-known and used of all British aircraft. This fact it owes not merely to its possessing all those generic qualities for which British aeroplanes are famous, but to the fact that it is the cheapest both to acquire and to maintain of all the successful and well-tried elementary training machines of the World. It is a good deal more than this, but this particular aspect of its uses deserves special mention.

The first Moth was produced in February, 1925. It was almost at once adopted by the then newly-formed State-aided British Flying Clubs for the training of their members and by the London flying training centre for officers of the British Royal Air Force Reserve.

The results obtained by these first users of the Moth as a school machine at once awakened interest in all quarters of the World where the problem of economical flying training was of importance, and the demand for Moths increased rapidly.

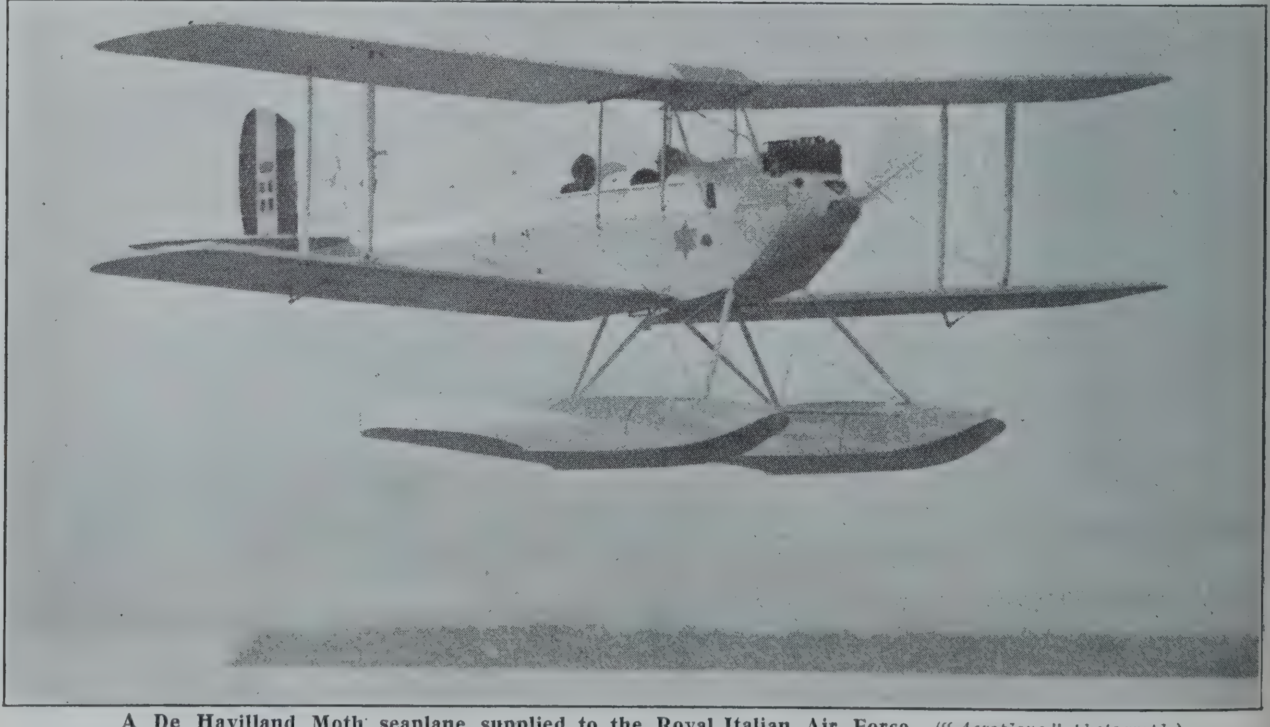
To-day this type of machine is in use by the British Royal Air Force, the Royal Australian Air Force, the Royal Canadian Air Force, the Irish Free State Army Air Corps, by the Governments of South Africa, India, New Zealand and Sarawak. It is used by ten civil training centres in Britain, by all the flying clubs of Australia and Canada, by eight clubs in Africa and one at Singapore. Outside c British territories Moths have been supplied to the Unite States, Argentina, Chile, Japan, Spain, Portugal, Finland Germany, Italy, Denmark, and many other countries.

They are in use under conditions ranging from the Arcti winters of Northern Canada to the 6,000 ft. high aerodromes of Central Africa, and in all countries and in a climates they are giving the utmost satisfaction.

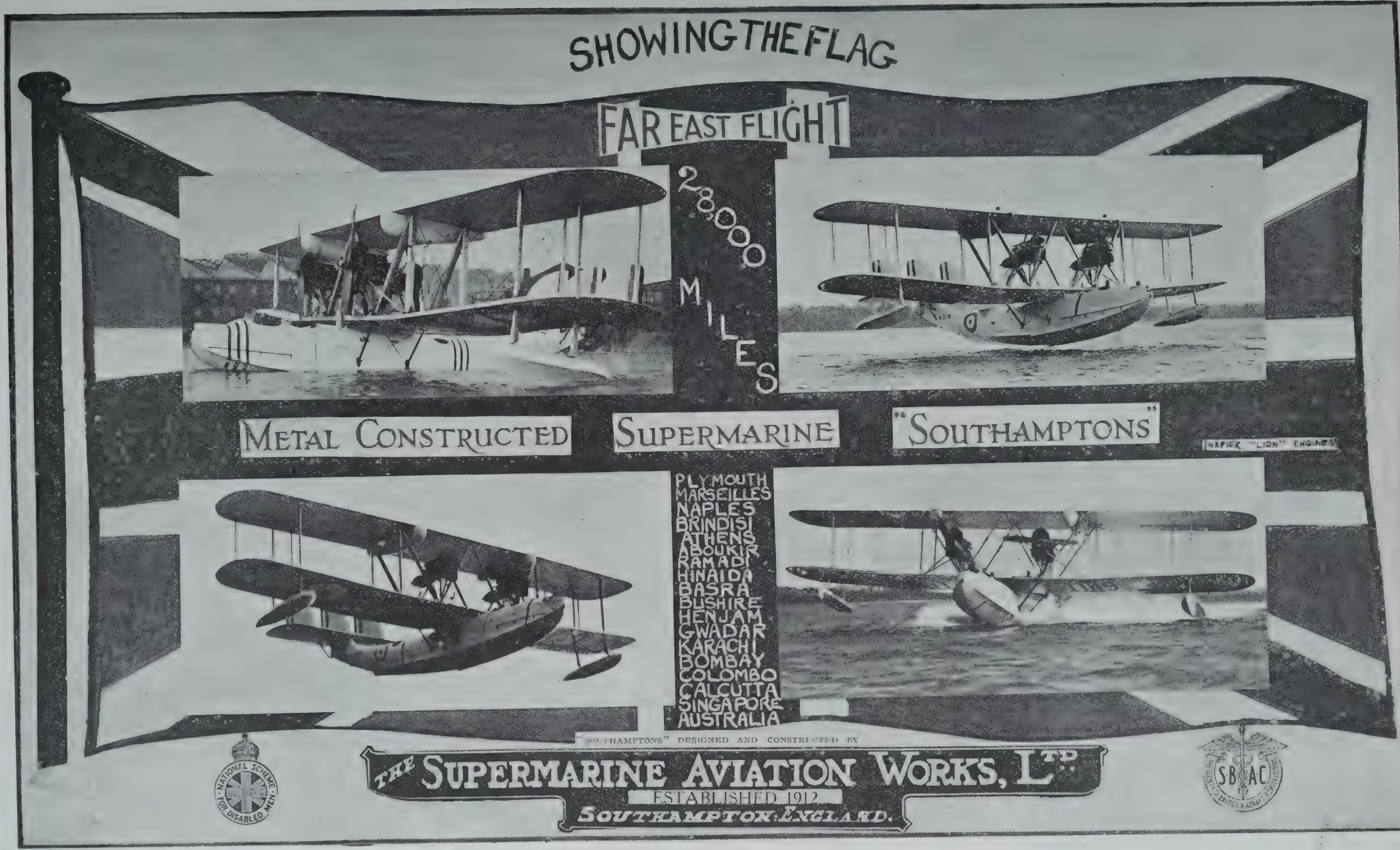
Its special merit as a training machine is that over an above its low cost, and economical operation, and robus construction is that it is a perfectly normal aeroplane, havin no peculiarities of behaviour, but behaving precisely as d the majority of well-designed high-powered modern aeroplanes. Consequently pilots trained from the beginning t fly on the Moth may pass without further training on intermediate types to the larger and more powerful civil o military types of machine.

The many famous flights which have been made on Moths the very satisfactory service which it has given both as a sporting machine for the private owner or as a commercia machine for the lighter classes of duty are ample proof o its all-round efficiency.

It may be used either as a land machine, or it may b fitted with floats. In either case it is suitable for teachin pupils all the manœuvres required for the most advance type of military flying. It has in fact repeatedly shown tha few aeroplanes can equal it in manœuvrability.



A De Havilland Moth seaplane supplied to the Royal Italian Air Force.—(*"Aeroplane" photograph.*)



SHOWING THE FLAG

FAR EAST FLIGHT

28,000 MILES

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BASRA
BUSHIRE
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"SOUTHAMPTONS" DESIGNED AND CONSTRUCTED BY

THE SUPERMARINE AVIATION WORKS, LTD.
ESTABLISHED 1912
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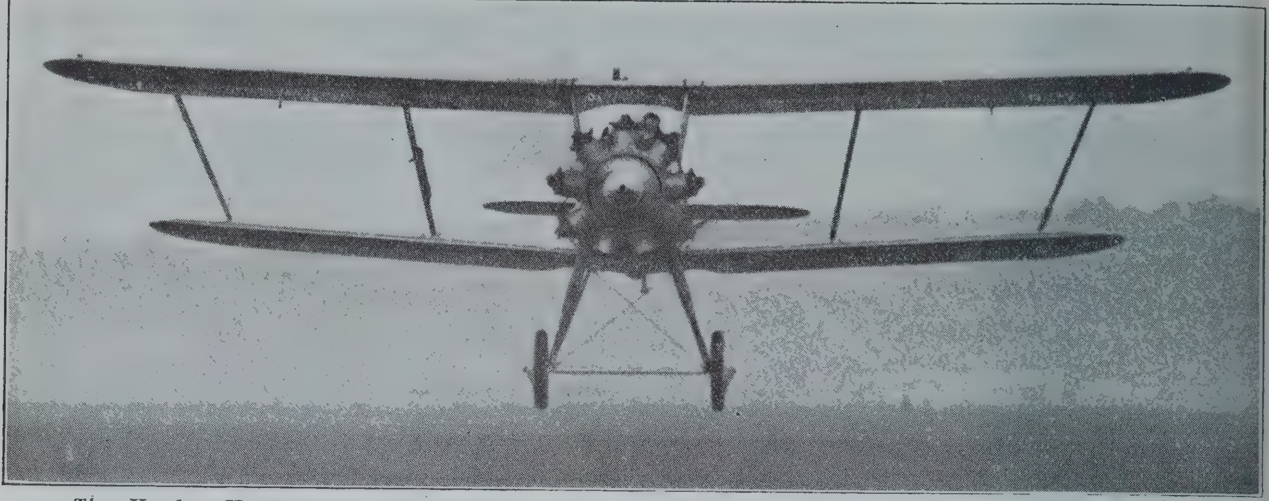
THE H. G. HAWKER ENGINEERING Co. Ltd., Canbury Park Road, Kingston-on-Thames.



The Hawker Hawfinch all-metal single-seat fighter (Bristol Jupiter engine).—(*"Aeroplane" photograph.*)

THE HAWKER HAWFINCH.

The Hawfinch with Jupiter VII engine is the latest single-seater fighter produced for the R.A.F. and is of distinctive design. The two bay wing structure results in a robust and rigid unit with a perfect field of vision. The detail design embodies the Hawker patent system of metal construction, which, based on the use of steel tubing and simple fittings, is ideal from the production aspect and reduces maintenance problems in service to a minimum.

No details may be given as to performance but it is such as to render the machine suitable for either day or night fighting.

THE HAWKER HORSLEY.

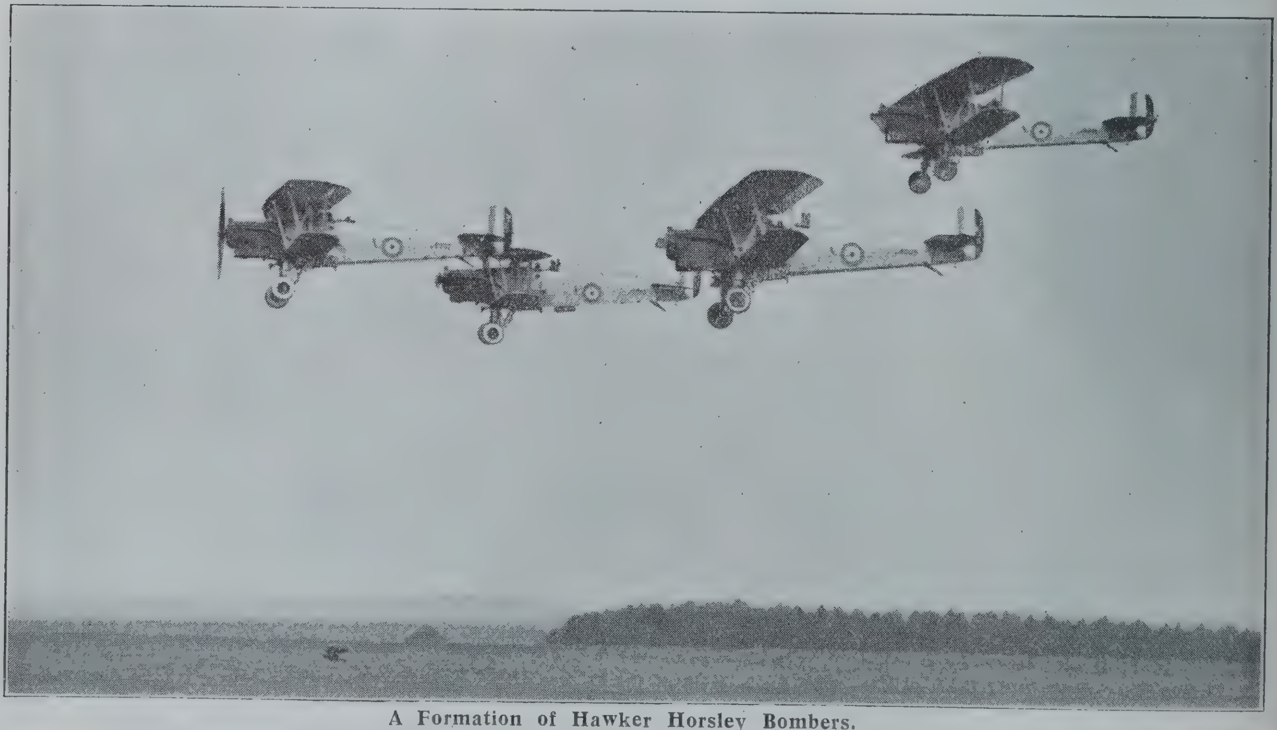
The Hawker Horsley, with the 670 h.p. Rolls-Royce Condor III engine, is the standard day-bombing machine of the R.A.F. It will be remembered that this machine was selected as a type after severe competitive tests and the selection has been fully justified by results.

The Horsley is a two bay biplane, the shorter span and dihedral of the lower planes and the slight sweepback, giving it a very distinctive apperance. The fuselage is a composite structure of timber and steel. The rear portion is of spruce, but from the pilot's seat a tubular steel structure is utilised, presenting a rigid unit. The tail group is of timber and steel tubing, with an iron-shod ash-skid. A Gottingen section of spruce construction forms an efficient plane. The spars are built up of box-type and ailerons are fitted to the top plane only. Struts are of steel tube, with the usual bracing, and the undercarriage is of the split type embodying the oleo principle. The interior of the fuselage is room and allows the observer ample space in which to move Prone bombing is carried out from a position forward of the pilot, a sliding panel allowing an unrestricted field of vision. The petrol tanks are neatly located in the centre section, an arrangement which allows a simple fuel system and additional fuselage space.

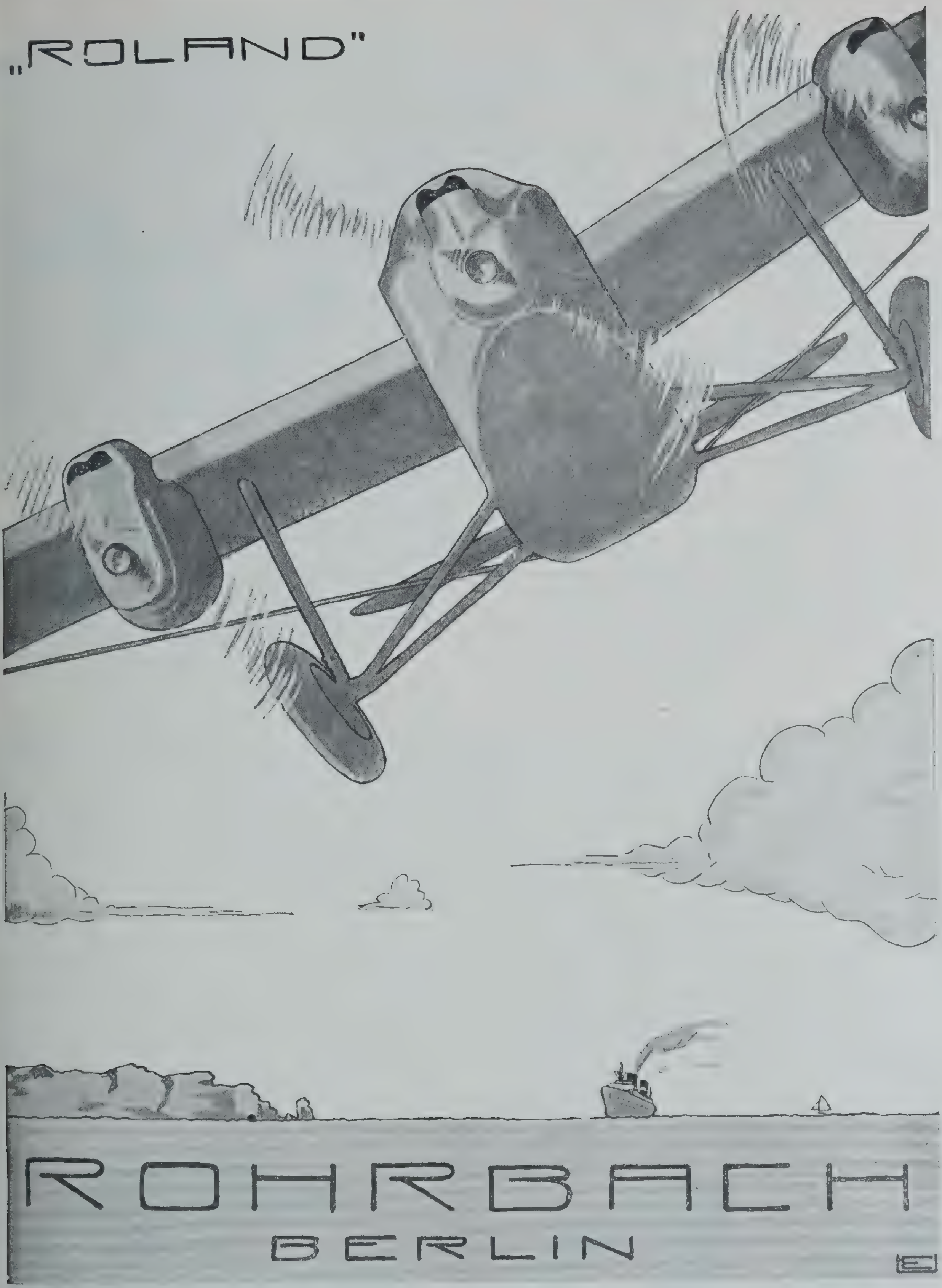
In its class the Horsley has an excellent performance. Apart from the general features of speed and climb, it possesses the manœuvrability of a scout, and the aerodynamic design is such that the machine has on occasions been flown hands off for periods of five minutes and over. The range can, of course, be varied according to the mixed load of bombs and fuel carried, and the machine can be used for day or night operations.

SPECIFICATION.

Span	56 ft. 9 in. (17.3 m.)
Length	38 ft. 3 in. (11.65 m.)
Height	13 ft. 7¾ in. (4.13 m.)
Wing area	692 sq. ft. (64 sq. m.)
Weight empty	4,760 lbs. (2,160 kg.)
Weight Full Load	7,800 lbs. (3,545 kg.)
Petrol Capacity	230 galls. (1,045 litres.)
Speed Max.	126 m.p.h (203 km.h.)
Speed at 10,000 ft.	120 m.p.h. (193 km.h.)
Speed at 15,000 ft.	113 m.p.h. (182 km.h)
Speed Landing	58 m.p.h. (94 km.h.)
Climb—	
To 10,000 ft (3,050 m.)	11.75 mins.
To 15,000 ft. (4,575 m.)	24.6 mins.
Range	10 hours.



A Formation of Hawker Horsley Bombers.



IF . . . . .

If one engine fails, what———?
Most aeroplanes equipped with two engines, or three, would be compelled to make a forced landing in this case.
Forced landing, that means: late arrival, perhaps danger to passengers, pilot and craft.

There is only one three-engined all-metal aeroplane in the world which maintains straight level flight (under full load) with only two engines running:

THE "ROHRBACH ROLAND."

D. NAPIER AND SON Ltd., Acton, London, W.3.

Few aero-engines have had a career of such continuous success as has the Lion engine designed and built by D. Napier and Son Ltd. Designed originally towards the end of the war, the first Lion engines in regular service use appeared shortly after the Armistice, and achieved an immediate success. This fact is the more remarkable in that the three-row broad-arrow type of engine was one that had not previously been used to any extent and that the detailed design of this type of engine was in very many respects novel.

Almost as noteworthy as the fact that this engine was a success from the start and did not suffer that long period of service development which so often is needed to make a really novel engine into a practical service proposition, is the very wide range of uses to which the type has been applied with satisfactory results.

The Napier Lion engine is in use in both land machines and seaplanes of all types and sizes. It has been the engine used on practically every successful British racing aeroplane. The first British aeroplane to attain a speed of 200 m.p.h. (the Gloster Bamel) was fitted with a relatively early version of the Lion engine. The Gloster and Supermarine challengers for the 1927 Schneider Trophy race used a special racing Napier Lion, which with cylinders of the same size as are used in all engines of this type developed just about 900 h.p. for a weight of roughly the some number of lbs.

It is noteworthy, and typical of Napier reliability, that of the engines in this race, the Napiers were the only ones which stood up and were able to complete the course without trouble of any kind.

The production of these special racing engines was the was the result of a vast amount of experiment and development. The very high speed of rotation used, the abnormal compression ratio, and the high mean effective pressure, all of them introduced difficulties overcome only by the exercise of knowledge, patience, and determination. And the results of that work of development have speedily been used to produce a type of Napier Lion engine suitable for regular service, which is in every respect an advance on earlier versions of this type.

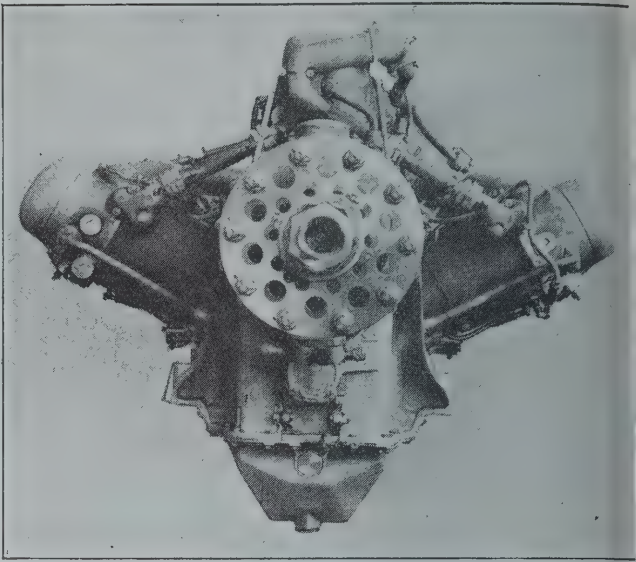
This engine—the Lion series XI—embodies many of the improvements first introduced into the 1927 racing engines. Noticeable among these is the removal of the carburettors to the rear of the engine, where they are masked by the cylinders, making it possible to enclose the whole in a cowling of smaller cross-section, and to improve the entry shape of the fuselage to which the engine is fitted.

The normal speed of rotation has been considerably increased, with a marked increase in the output of the engine, and the potential ill-effects of this increase on the efficiency of the airscrew has been avoided by fitting a reduction gear of higher ratio than was previously used.

The weight of the complete engine remains substantially unaltered, and thus the new engines give considerably more power, better airscrew conditions, and a better body shape at a decidedly lower weight per h.p. At maximum permitted speed, the engine develops 570 h.p. for a weight of rather less than 1¾ lbs. per h.p.

The Napier Lion Series XI has now been fitted to a very considerable number of different types of British aircraft.

The De Havilland Hound, whose remarkable performance is best known by its recent achievement of setting up three World's records, has a Series XI Lion. The Fairey III.F machines used on the last Cairo to Cape flight, and indeed all the Fairey III.F machines of the General Purposes type, have this engine.



Front end view of the Napier Lion series XI engine.

The Series XI engine it is that has made possible the development of the two-seater type of torpedo-carrier, such as the Avro Buffalo, Blackburn Ripon, and Handley Page Harrow, with a performance equal or superior to that previously attained by single-seaters of the same class.

For both military and civil purposes the earlier types of Napier Lion have achieved a wide popularity throughout the world for their reliability and excellent all-round performance. In every case where a Series XI engine has been substituted for the earlier Series V engine a marked improvement in performance has been produced, and there is so far every reason to expect that the newer engines will at least equal the older types in durability and reliability.

In the case of the larger, more heavily-loaded classes of aircraft, where the problems of getting off with full load ar apt to be serious, the better airscrew characteristics which are given by the new reduction gear, together with the increased output of the engine will be found to make an almost unbelievable difference. And in such aircraft where a relatively small proportion of the power necessary for taking off is used for normal cruising, the Series XI engine ma fairly certainly be expected to show even longer life and higher reliability than the Series V, and it is therefore indicated as an ideal engine for heavy duty.

Specification of the Napier Lion Series XI.

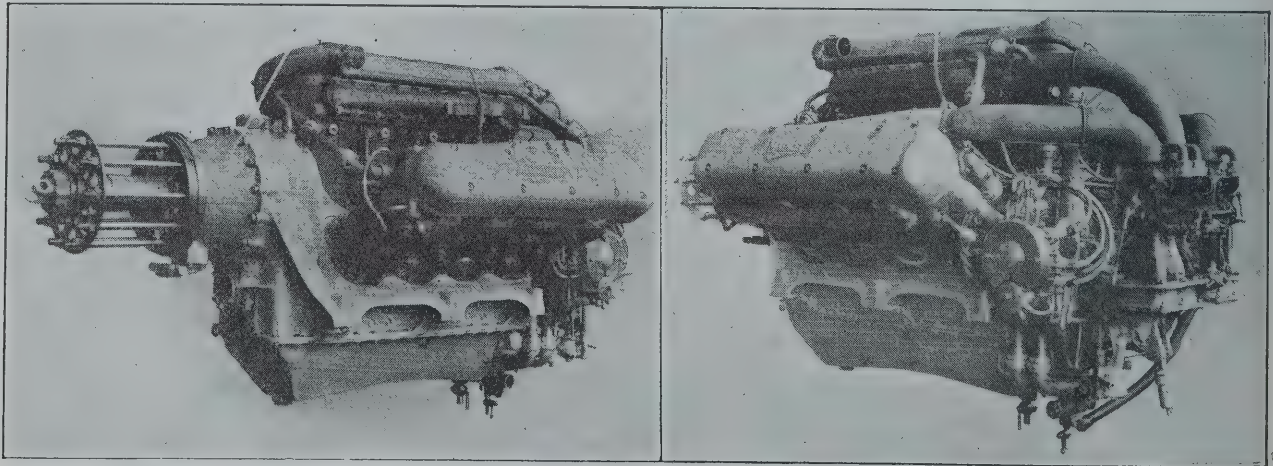
Type.—Water-cooled, twelve-cylinder, three-row type, 60° between rows.

Cylinders.—5½ in. (140 m/m.), Bore 5⅛ in. (130 m/m.), Stroke, Compression ratio 6 to 1.

Overall dimensions.—Length to centre of airscrew 61 in. (1.55 m.), Width overall 42 in. (1.068 m.), Height 39 in. (0.99 m.).

Weight.—Complete with airscrew boss, reduction gear, and hand-starting gear 955 lbs. (434 kg.)

Performance.—Normal output 530 b.h.p. at 2,350 r.p.m., Maximum 570 b.h.p. at 2,585 r.p.m. Fuel consumption 0.5 lb. (1,227 kg.) per h.p. hour, Oil consumption 0.235 lb. (.011 kg.) per h.p. hour.



Three-quarter front and rear views of the Napier Lion series XI engine of 530/570 h.p.

THE 'SHORT' "SINGAPORE"
All-metal flying boat
(Rolls-Royce engines.)

Back home!

This telegram has been received from Sir Alan Cobham, K.B.E., upon the conclusion of his African flight of 23,000 miles.

B or C

POST OFFICE TELEGRAPHS

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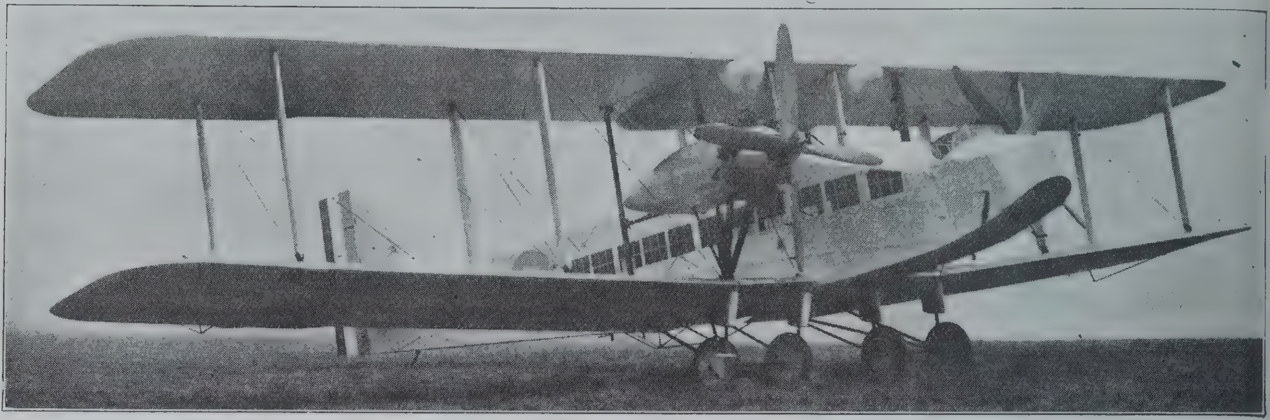
PLEASE ACCEPT CONGRATULATIONS ON MARVELLOUS PERFORMANCE OF THE SHORT SINGAPORE ALL METAL FLYING BOAT ON THE COMPLETION OF THE SIR CHARLES WAKEFIELD FLIGHT OF SURVEY ROUND AFRICA OF TWENTY THREE THOUSAND MILES WHEN WE MADE EIGHTY LANDINGS AND EIGHTY TAKE OFFS WITHOUT DIFFICULTY WITH FULL LOAD UNDER TRYING CONDITIONS AND TROPICS SINGAPORE RETURNS HOME IN SAME PERFECT CONDITION AS AIRWORTHY AS WHEN SHE STARTED THE ROUND AFRICA FLIGHT SIX MONTHS AGO

ALAN COBHAM

SHORT BROS. (ROCHESTER & BEDFORD) LIMITED, ROCHESTER, KENT

HANDLEY PAGE Ltd., Cricklewood, N.W.



The Handley Page Clive troop carrier (two Bristol Jupiter series VIII engines).

Formed as long ago as 1909 Handley Page Ltd. are the oldest established of all the British aircraft constructing firms. It is not, however, only their long history of successful aeroplane construction that has made their name a household word in aeronautical circles throughout the World. The development of the Handley Page slot—a device which has proved itself capable of overcoming the greatest of all the perils of flying—is a work which has made this firm famous over the whole World.

Within a relatively short time the slot—at least as a control device which overcomes the normal loss of control which accompanies stalling—must come to be regarded as an essential feature of any properly equipped aeroplane.

So much has been said and written concerning the slot lately that it is as well here to emphasise the fact that Handley Page Ltd. have produced not only the slot, but also some of the most efficient of modern aeroplanes.

Two of the most recent of Handley Page aircraft are illustrated on this page. One of these will at once be recognised for its affinity with the well-known W.10 type used by Imperial Airways. This particular machine—the Clive—is, however, designed as a troop-carrier and is fitted with two geared engines of the Bristol Jupiter Series VIII type, and is equipped for service in tropical climates. This type fully loaded weighs 14,500 lbs. (6,600 kg.). Of this practically one half, 7,200 lbs. (3,270 kg.), is available as total disposable load, including crew, fuel, and equipment. A top speed of 110 m.p.h. (177 km.h.) is attained with this load, and the machine will fly and maintain its altitude with one engine only running.

The other machine—the Harrow—is a high performance bomber or torpedo carrier fitted with the Handley slot both for the purpose of securing full control at the stall and also for decreasing the speed at which stalling occurs to a figure far below that which could be attained without the use of slots.

The Harrow is fitted with folding wings to permit of stowage in the minimum of space. The wide track split-axle type undercarriage makes it suitable for use on the roughest aerodromes and allows for the central slinging and dropping of a torpedo or a bomb of the largest size.

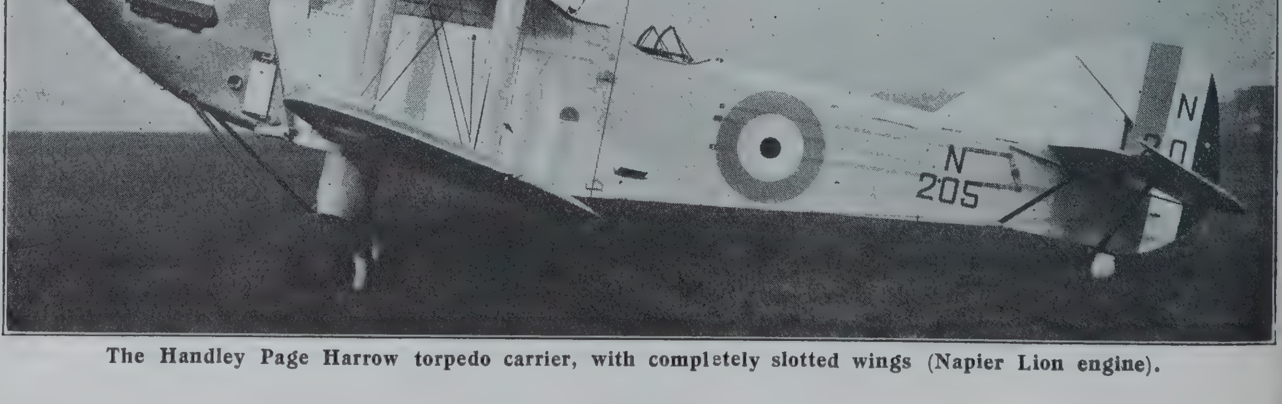
This undercarriage may be replaced by a twin float undercarriage. As a seaplane the value of the Handley Page slotted wing used shows itself very markedly in the ease with which the machine may be pulled off the water after a very short run with complete safety.

The machine shown in the photograph is fitted with a Napier Lion engine. This is mounted in a readily-detachable engine mount, and alternative engines may be used. In particular the Jupiter Series VI or VIII (geared) can easily be used.

An excellent view is given to both pilot and observer, and the machine's high performance and manœuvrability gives it a maximum capacity for self defence against attack by enemy aircraft.

The slots fitted to the wings of this machine are automatic in action. The slots used to reduce the taking-off and landing speed are interconnected with flaps and are in operation only during taking-off and landing. The slots used for control purposes come into operation automatically at any time when the air speed of the machine falls to a low value.

The Harrow empty weighs 4,125 lbs. (1,875 kg.), carries 2,392 lbs. (1,087 kg.) of military load and 787 lbs. (358 kg.) of fuel and oil, giving a total loaded weight of 7,310 lbs. (3,320 kg.). Thus loaded and with a Napier Lion engine the top speed at sea level is 131 m.p.h. (211 km.h.), and at 3,000 m. (9,840 ft.) 122 m.p.h. (196 km.h.). The landing speed is 52½ m.p.h. (84½ km.h.) and the run and take-off in a wind of 3 m.p.h. (4.8 km.h.) is 620 ft. (188 m.). The climb from sea level is 700 ft. (234 m.) per min. and the ceiling is 15,300 ft. (4,670 m.).



The Handley Page Harrow torpedo carrier, with completely slotted wings (Napier Lion engine).

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COLONEL LINDBERGH
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GEORGE PARNALL & CO, Coliseum Works, Bristol, and Yate Aerodrome, Gloucestershire.

Since this firm was founded it has produced a surprisingly large number of new and interesting types of aircraft, nearly all of them showing features of distinct novelty. As a result of their habit of breaking new ground and departing from the more orthodox lines of aircraft design most of their more important productions of recent date remain on the Air Ministry's Secret List and cannot be described.

The Parnall Imp—a two-seater light aeroplane of the class now so popular almost throughout the world—however, happily falls without the veil of secrecy, and fortunately is a typical example of the freshness of conception which this firm seems to command.

Parnall and Co. have shown an interest in the light aeroplane movement from the first. The first of the famous series of Pixie machines was produced for the British Light Aeroplane Competitions of 1923, and, fitted with a two-cylinder Douglas motor-cycle engine, was remarkably successful, as well as being quite unlike any other machine up till then produced.

For the 1924 competitions a modified and improved Pixie, fitted with a Blackburne motor-cycle-type engine, was produced, which was rapidly convertible from a monoplane to a biplane, or vice-versa. As a monoplane it was a relatively fast sporting type of machine, whereas fitted with an upper-wing and converted to a biplane it had a greatly reduced landing speed, and an excellent get-off, making it eminently suitable for training purposes, or for general touring.

One at least of these Pixie machines is still in use as a runabout, and is flown fairly regularly by the firm's designer-in-chief, Mr. Bolas, and it has shown itself a very serviceable little craft.

The Imp, produced in 1928, is a two-seater of the now popular type, which is fitted with an engine of round about 80 h.p., and has thus a larger reserve power and is generally a more robust and serviceable type of machine than could be produced to meet the earlier idea of a light aeroplane, having an engine of not more than 40 h.p.

The machine is of that relatively uncommon type, the cantilever biplane, has an unusual wing arrangement which gives to both pilot and passenger what is probably the best all-round view that has yet been provided in any single-engined tractor machine, and it is of very simple and robust construction.

In a number of races wherein it has competed it has shown itself to be well above the average of this class of aeroplane in speed, and its general all-round performance is excellent.

The Imp is of all-timber construction, with plywood covering on wings, body and tail surfaces. This covering serves throughout as the main stress-carrying member.

The wings have no spars, properly speaking. They are built on a number of light spruce members, which take shear stresses and act in the place of the webs of the normal spar, and a series of former ribs. The skin takes all tensile and compressive stresses due to bending.

The upper wing has a very marked sweep-back. On the centre line of the machine this wing is ahead of both pilot's and passengers' seats, and its chord lies practically on the eye-level of both of the crew, so that they may see both above and below it with equal facility.

This upper wing, in two halves, is pin-jointed to a cabane of steel tube above the fuselage. Lift-loads from this wing are transmitted through one single strut on each side to the lower wing, which is in one piece, continuous across the body. The lower wing takes the lift loads transmitted from the upper wing, as well as its own, in bending.

The sweep-back of the upper wing brings the point of attachment of the lift strut vertically over the lower wing, and thus the upper wing lift load does not produce any serious torsional loads in the lower wing.

The fuselage, which is built on spruce longitudinals and a number of spruce struts, which really serve mainly as stiffeners for the plywood skin, is remarkably roomy, athough its cross-section is not unusually large.

The two cockpits are both considerably more spacious and comfortable than in the majority of light aeroplanes, and there is ample locker space for a reasonable amount of luggage.

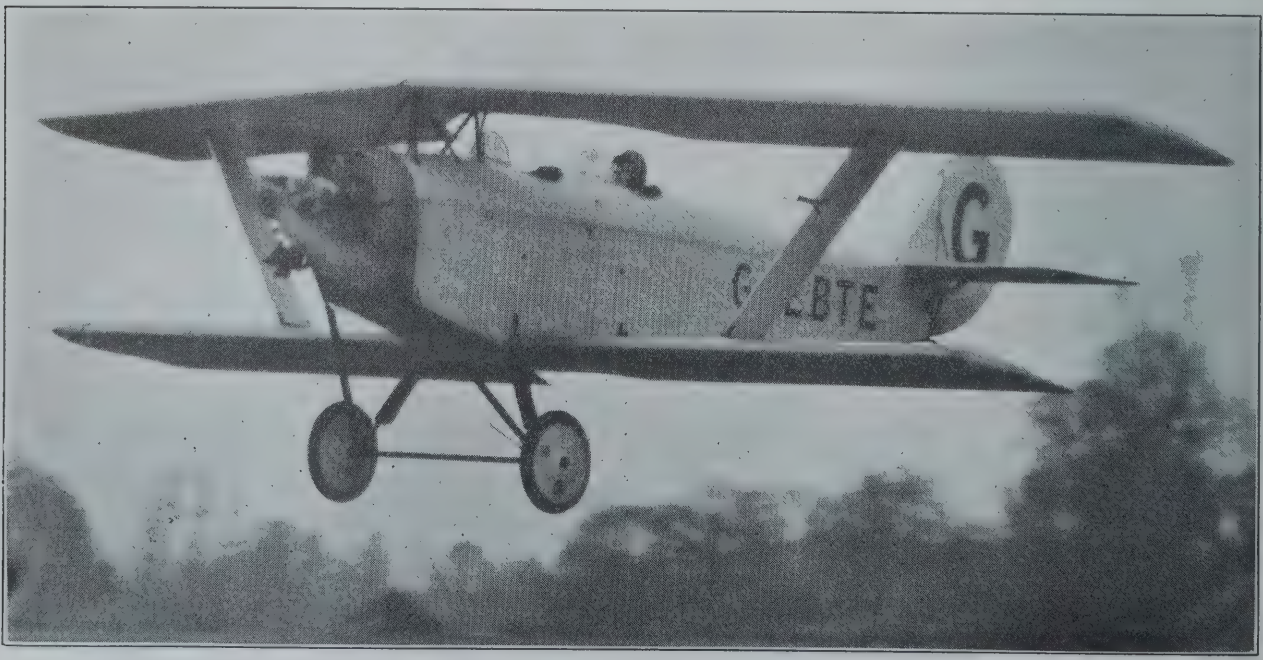
The wings of the Imp do not fold, but they are very easily removable for stowage in a confined space. Folding wings have undoubted advantages, but for a cantilever machine such as this they would involve complication, extra cost and extra weight

Owing to the type of construction used the Imp has but a very small number of metal fittings, and these generally are simple and robust in character. Because of this the machine can be built at a very low cost, and as the makers point out, a little extra shed space may be rented at less extra cost than would be necessary to arrange for folding wings on this type of machine.

The Imp is fitted with an Armstrong Siddeley Genet air-cooled radial engine of 80 h.p., but may be adapted to take any other suitable engine of approximately equal power. It has a top speed of over 100 m.p.h. (161 km.h.), lands at 40 m.p.h. (64 km.h.), and has an excellent take-off and climb.

The general simplicity of its construction, the total absence of any wires to stretch and need adjustment, should make it an excellent machine for the private owner.

For training purposes and indeed for all purposes the remarkable view given by the Imp should be found an exceedingly valuable characteristic. Lack of a good view forward and upward, which is unfortunately rather usual in the majority of otherwise excellent small biplanes, leads in the neighbourhood of a busy aerodrome to some considerable risk of collision, particularly when a relatively inexperienced pupil is practising approaches and landings. Using an Imp it will be difficult for any pupil to complain of lack of view.



THE PARNALL IMP.—An all-wooden cantilever biplane with an Armstrong Siddeley Genet engine.

—(*" Aeroplane " photograph.*)

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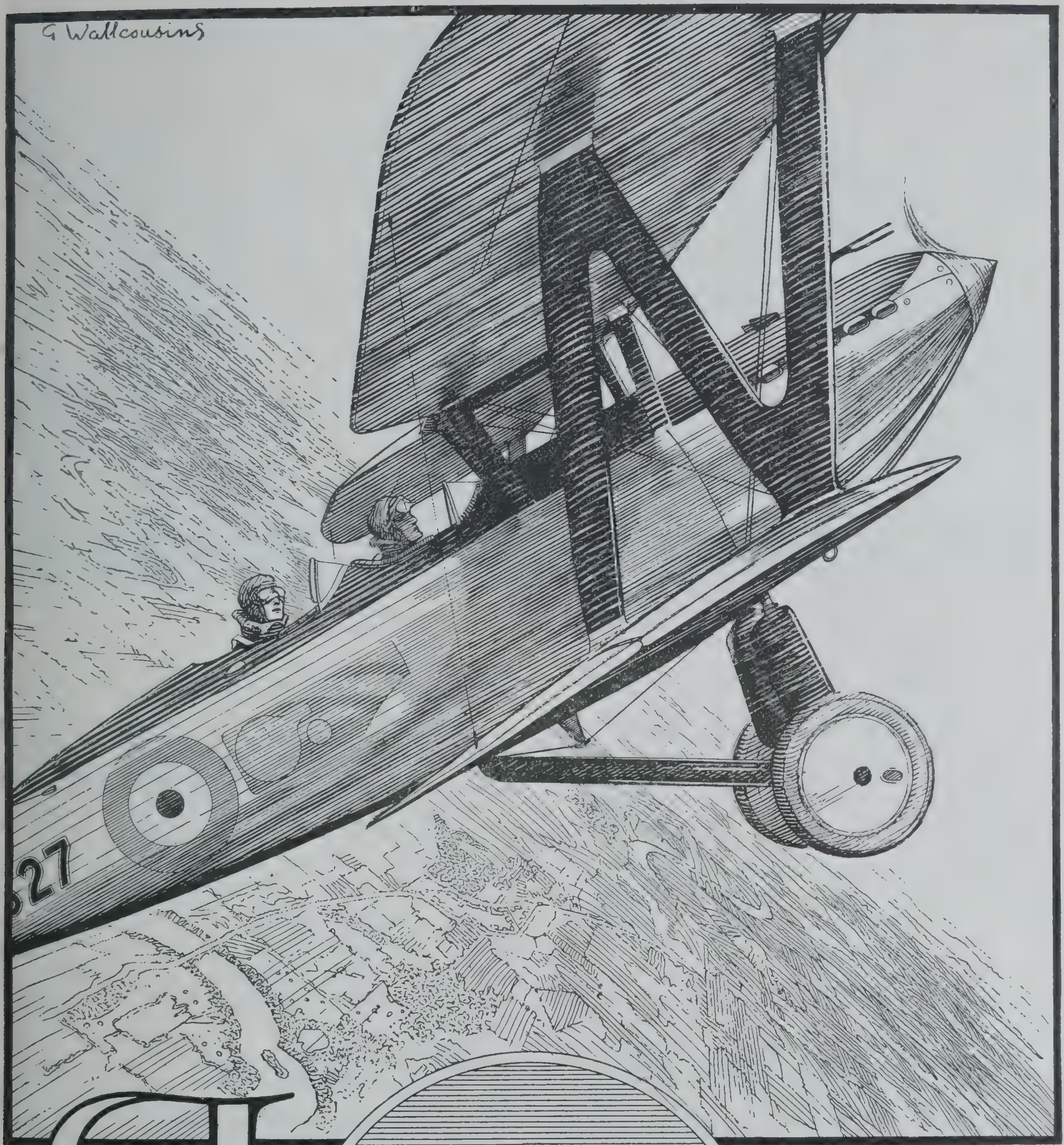

Fairey

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A. V. ROE & Co. Ltd., Newton Heath, Manchester & Hamble, Hants.

The Avro Gosport training machine giving a demonstration of its controllability —(*" Aeroplane " photograph.*)

It seems very remarkable when one considers that, although the original Avro 504 type was first designed in 1912, when practically nothing was known of the methods by which correct surface areas can be calculated, no alterations were found to be necessary when, some time later, these calculations were made with the object of checking up the design. The first variation of the original design was 504A, and by 1917 the current version was 504J. During the first years of the war the standard Avro had been used for a multitude of purposes.

In 1917, however, came the development of first really scientific and reasoned system of flying training, known as the " Gosport " system, which was not only to produce better fighting pilots, but to produce them with less waste of life, material and time. One of the basic principles of this system was that only one type of training machine was to be used throughout the complete course of instruction.

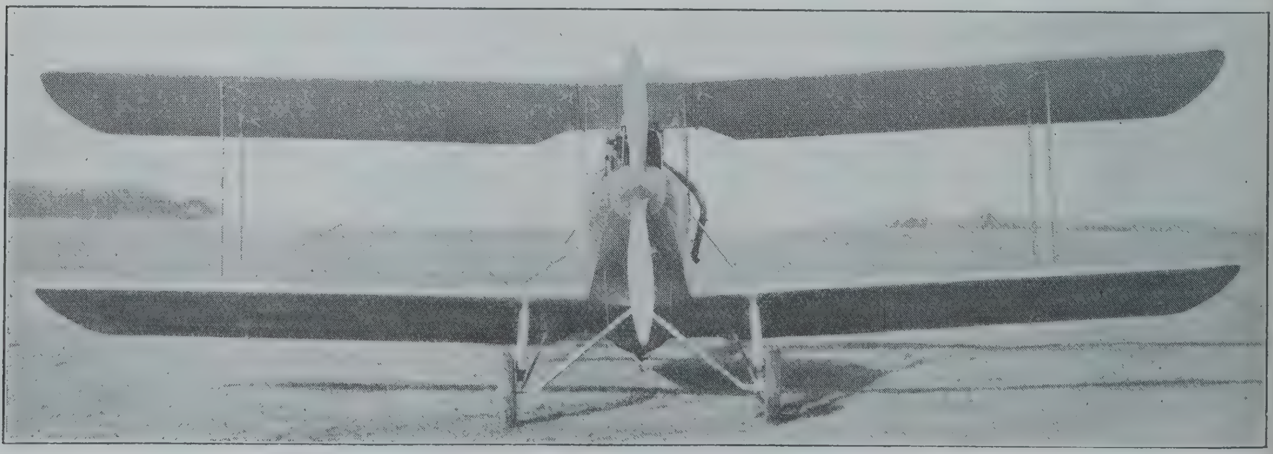
It was consequently necessary to find a machine which was essentially safe and easy to fly, sufficiently robust in construction to withstand the none too tender handling of the pupil pilot and yet having those vices peculiar to the fast single-seater service types which a pilot might eventually have to fly. It was decided that the 504J Avro was the right machine, and one has been told that none were more surprised than A. V. Roe and Co. to hear that this machine was the fortunate possessor of all these vices.

At the end of the War the 504J had been well and truly spoilt by its development to 504K, necessitated by the shortage of Monosoupape engines and the fact that the machine had now to be suitable for a miscellaneous assortment of other rotary engines.

With the development of the Lynx engine after the War by Armstrong Siddeley Motors Ltd. came the next variation of the Avro training machine 504N, which not only overcame the many disadvantages of the rotary engine but provided an *ensemble* still suitable for training—without any challenger, in fact—in spite of the rapid advances that had been made in the design of Service types.

But the use of 200 h.p. for training purposes and the relatively high price of such a machine placed it beyond the reach of many overseas customers and Air Services for economic reasons.

So the " Gosport " training machine was designed, still a member of the 504 family, designed for a much lower-powered engine. At first the rejuvenated Monosoupape was used, but only until the real climax could be achieved—an Avro training machine with a radial engine of economic power and price. The Alpha, as this engine is called, is a static radial with five cylinders, developing some 100 h.p. and weighing about 220 lbs. It is claimed that this combination represents the very latest thing in training equipment, and it can, moreover, be sold at an economical price. One has never seen any sign of retrogression in Avro policy during very many years and is therefore inclined to believe that this latest Avro will hold its own against all comers wherever the training of military pilots is concerned.



The Avro Avian light aeroplane which is rapidly attaining a World-wide popularity nearly equal to that earlier achieved by the Avro 504 type.

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Sir Alan Cobham's Flight on a D.H. "Moth," "Cirrus" engine—London—Zurich—London.

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Sir Alan Cobham's 28,000-mile Flight — London — Australia — London.

Sir Alan Cobham's 23,000-mile African Flight.

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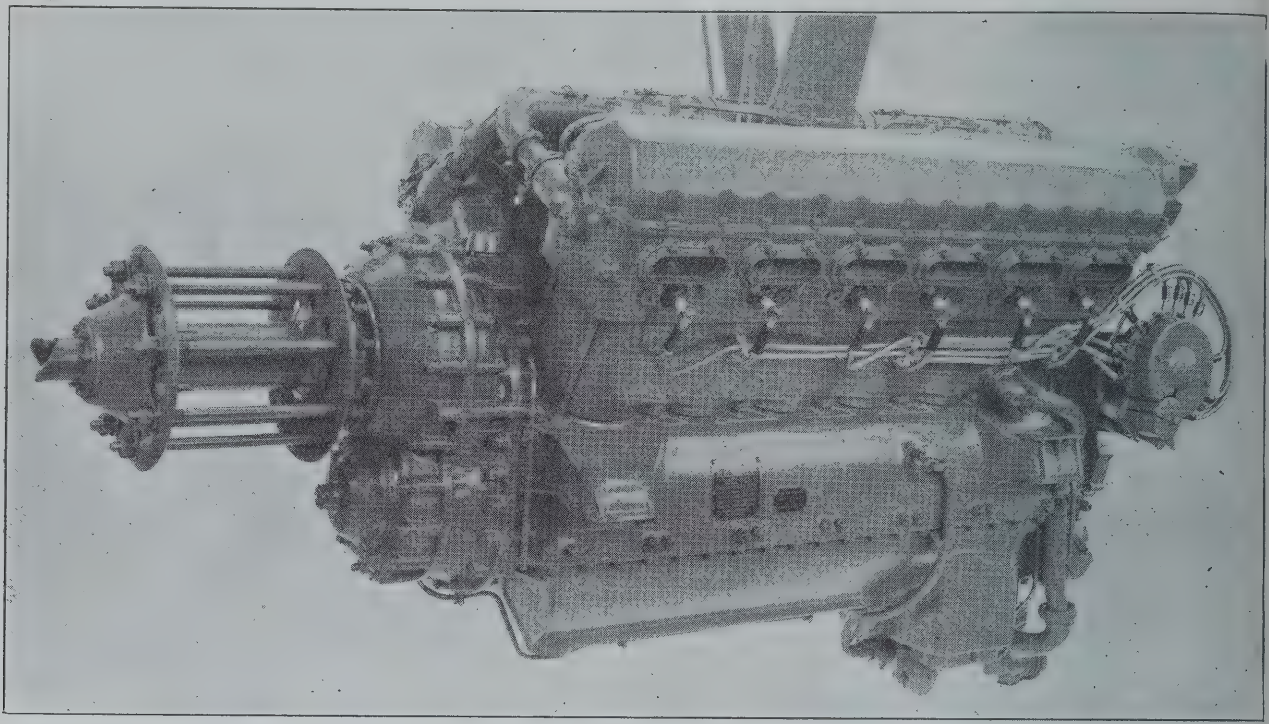


A Rolls-Royce aero-engine of the F. type.

The latest of aero-engines produced by the famous Rolls-Royce works are a series of twelve-cylinder Vee type engines all of the same general design, but fitted with two different airscrew gear ratios, and of two compression ratios, making in all four variants. These engines are known as the "F" type, and more specifically as the F.XI.A. with a compression ratio of 6 to 1 and a reduction gear ratio of .632 to 1; the F.XI.B. with a compression ratio of 7 to 1 and the same gear ratio; the F.XII.A. 6 to 1 compression and .552 to 1 gear ratio; and the F.XII.B., 7 to 1 compression and .552 to 1 gear ratio.

The lower compression engines develop a normal output of 490 b.h.p. at sea level. Those with the higher ratio may not be opened out to more than 480 b.h.p. at sea level, but may be given full throttle at 3,000 ft., where they will develop the same output, and are therefore suitable for aircraft intended to develop a high performance at altitudes.

Unlike the earlier and better known Falcon, Eagle and Condor types of Rolls-Royce engines, the "F" type has its cylinders in blocks of six. The blocks proper are aluminium castings with the cylinder-heads integral with the blocks. The cylinder-barrels are of steel, simple in form, easily renewable, and are in direct contact with the cooling water on their outer surfaces.

Four valve seats of aluminium-bronze are screwed into each cylinder-head of the block casting. These seats also are easily removable and replacable.

An overhead camshaft is carried on bearings supported directly from the cylinder block casting, to which also are attached the fulcrum bearings for the valve rockers. There is a separate cam and rocker for each of the four valves of each cylinder. The whole of the overhead valve gear is enclosed by an aluminium casing removable without disturbing any of the working parts of the engine.

The crankcase is a very stiff and rigid structure consisting of two aluminium castings, of which the upper half carries the cylinder blocks and crankshaft bearings and the lower serves as an oil retainer and reinforcement for the whole assembly.

The crankshaft, which is a nickel-chrome steel forging ground to size all over and lapped in all bearing surfaces, is carried in steel-backed white-metal bearings with forged duralumin lower bearing caps. These are held in place not only by the usual vertical bolts, but also by horizontal bolts which pass from side to side of the crankcase and through the bearing caps. These horizontal bolts serve very greatly to increase the stiffness of the crankcase as a whole.

Connecting-rods are of the plain and forked type. The forked rod on each crank throw carries a white-metal lined big-end block bearing over the whole length of the crankpin. The central section of this block is machined to circular section and is white-metal faced. The end of the plain rod runs on this surface. Floating bushes of phosphor-bronze are fitted to the little-ends of all connecting-rods.

Pistons are "Y" alloy forgings, machined all over, fitted with four rings. Of these the only one below the gudgeon-pin serves as an oil-scraper. Gudgeon-pins float in both piston and connecting-rod bushes.

All the gears for the auxiliary drives of the "F." engines are contained in a gear case which bolts onto the end of the crankshaft. The drive for all these gears is taken from the rear end of the crankshaft through a very ingenious spring drive. This consists of a long, slender shaft capable of some degree of give driven from the crankshaft by a serrated coupling. Outside of and concentric with this spring shaft is a tubular shaft which is rigid, and this is fitted with a second serrated coupling also meshed with the crankshaft. This second coupling has a small but definite amount of back-lash. Thus if the slender shaft springs beyond safe limits, or even fails, the back-lash of the second coupling is taken up and the drive is transmitted through the tubular member.

The reduction gears used are of the plain spur gear type and form a unit independent of the crankshaft proper. The reduction gear pinion shaft is carried on bearings in a gear case bolted to the crankcase and are driven from the crankshaft through a splined coupling which will permit of a small degree of lack of alignment between the two shafts. Thus none but purely torsional loads can be applied to the crankshaft through the gear.

Two Rolls-Royce carburettors of a special duplex type are mounted between cylinder blocks and are provided with automatic altitude controls and sealed float chambers. The controls of these carburettors are rigidly interconnected and brought to the after end of the engine, so that only one control connection has to be made.

Two twelve-cylinder B.T.H. Magnetos are carried transversely on brackets at the rear end of the engine. These fire two plugs—one fitted on the outer and the other on the inner face of the block—in each cylinder. In spite of the arrangement of carburettors between blocks the plugs on the inner faces are all easily accessible with a box-spanner.

The lubrication is of the usual dry sump type and there is a direct pressure feed even to the little-end bearings. The direct pressure from the pressure pump is applied to all crankshaft bearings, the excess oil beyond that needed for these escapes through a relief valve. Beyond this valve is a second relief valve set to a lower pressure and from between these two valves oil at a reduced pressure is taken to the camshaft and auxiliary gear bearings.

The engines are equipped to take a gun synchronising gear, an engine-driven petrol pump, and are fitted with a worm gear hand-starter.

The F. type of engines are notably compact. Their frontal area is probably less than that of any Service type of engine of equal power yet produced, and their weight—which is 865 lbs. (392 kg.) dry—amounts only to 1.76 lbs. (0.80 kg.) per h.p. on the normal and to 1.6 lbs. (0.727 kg.) per h.p. on the maximum output (540 b.h.p.) of the lower compression type of engine.

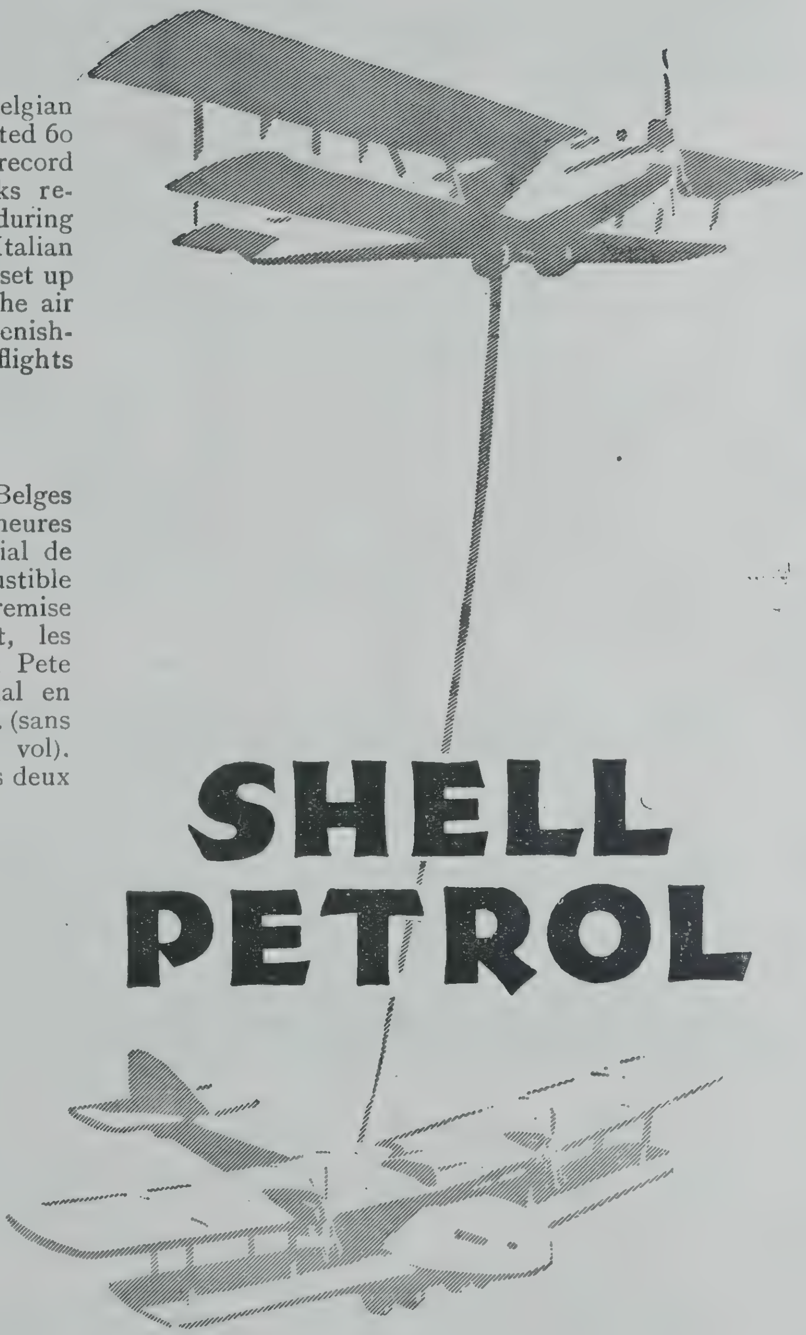
New World's Records

60 HOURS IN THE AIR ON SHELL PETROL

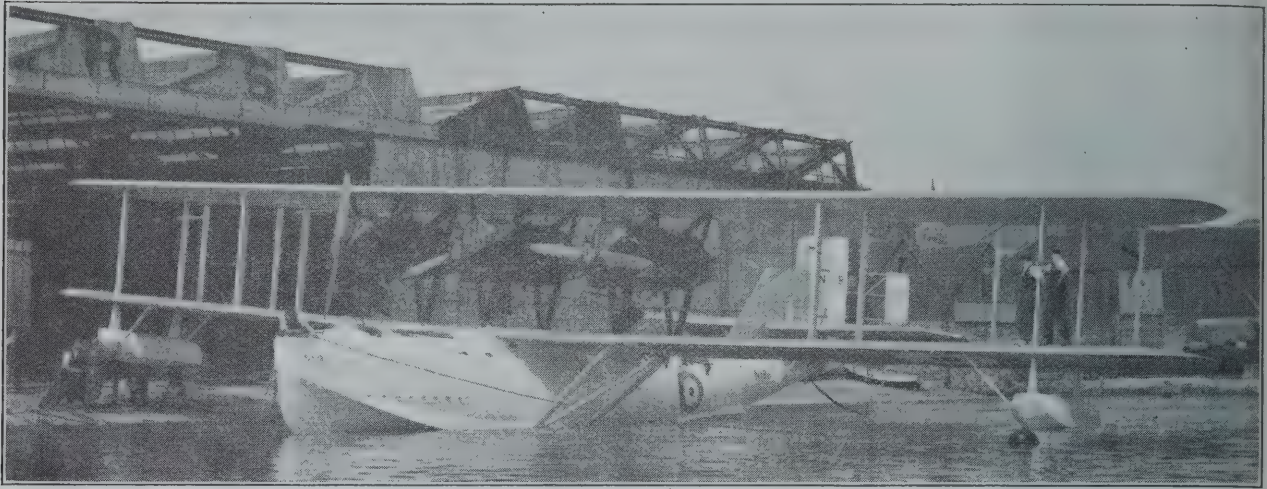
At Tirlemont, on June 4th, the Belgian airmen Crooy and Groenen completed 60 hrs. 7 mins. in the air—a world's record for duration flight with fuel tanks replenished from other airplanes during flight. On the previous day the Italian airmen Farrarin and Del Pete also set up a world's record by remaining in the air for 58 hrs. 42 mins. (with no replenishment of tanks during flight). Both flights were made on Shell Petrol.

A Tirlemont, le 4 Juin, les aviateurs Belges Crooy et Groenen ont totalisé 60 heures 7 mins. de vol — un record mondial de durée avec les réservoirs de combustible réapprovisionnés en l'air par l'entremise d'autres avions. Le jour avant, les aviateurs Italiens Farrarin et Dal Pete ont aussi établi un record mondial en tenant l'air pendant 58 hrs. 42 mins. (sans réapprovisionner ses réservoirs en vol). L'essence employée au cours de ces deux vols était Shell.

En Tirlemont, el 4 de Junio, los aviadores Belgas Crooy y Groenen totalizaron 60 horas 7 mins. en el aire—un record mundial de duración con los depósitos de combustible reaprovisionados en el aire por medio de otros aviones. El día antes, los aviadores Italianos Farrarin y Del Pete también establecieron un record mundial permaneciendo en el aire durante 58 hrs. 42 mins. (sin reaprovisionar sus depósitos durante el vuelo). En ambos vuelos, se utilizó la Esencia Shell.



S. E. SAUNDERS Ltd., East Cowes, Isle of Wight.



THE SAUNDERS VALKYRIE.—A sea-going flying-boat with three Rolls-Royce Condor engines each of 700 h.p.

Famous as builders of high-speed boats long before aeroplanes had become a practical proposition, S. E. Saunders Ltd. were among the earliest firms in this country to display a practical interest in aeronautics. They carried out a good deal of experimental work for the late Sir Hiram Maxim in connection with his very early attempt to build an aeroplane, and as far back as 1909 they built to the design of others an attempt at a flying-boat.

Three years later S. E. Saunders built for Mr. T. O. M. Sopwith the hull of the first successful amphibian aeroplane, which won the Mortimer Singer Prize of £500 for a series of "landings" alternately on land and water. This machine led to the construction of a series of Sopwith "Bat Boat" hulls and to a number of other experiment flying-boat hulls.

A year before the War the firm received orders from H.M. Government for a number of B.E. biplanes. Ever since that date they have continued to produce complete aircraft.

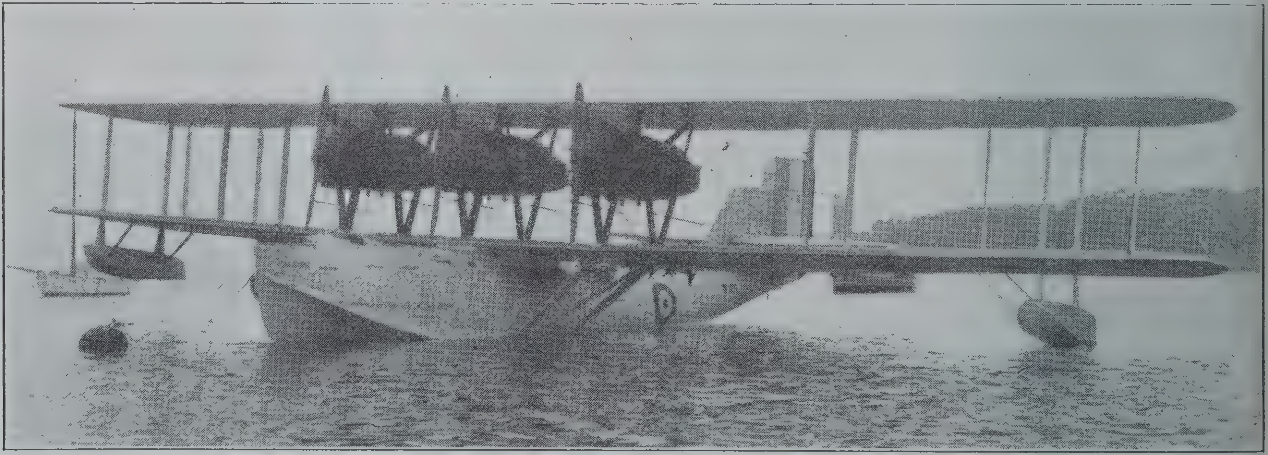
During the War their works were one of the chief centres for the production of the large "F." type flying-boats, and they possess in consequence one of the largest and best equipped aircraft factories in the country.

As is natural, S. E. Saunders's main—though not exclusiv —aeronautical interest lies in the direction of sea-going ai craft.

Their latest production—at least the latest which may a yet be mentioned—is the Valkyrie, a large sea-going flying boat, fitted with three Rolls-Royce Condor engines, designe for the British Air Ministry.

This machine has proved itself exceedingly sea and ai worthy, has an excellent performance and is to be regarde as among the most highly developed of modern large flying boats. It will be remembered that it was one of the flee of British flying-boats which made the successful cruise t Baltic waters in 1927, carrying Sir Samuel Hoare, Secretar of State for Air, as a passenger.

The wide knowledge and experience of sea-going craft c all the lighter type possessed by this firm is naturally great asset to them in the design of the hulls of seaplanes Their long and successful career as aircraft builders i evidence that they have an equally sound knowledge of th aeronautical business, and therefore it is safe to look t S. E. Saunders to keep a leading place among the designer and producers of seaplanes.



The Saunders Valkyrie at her moorings off Cowes.

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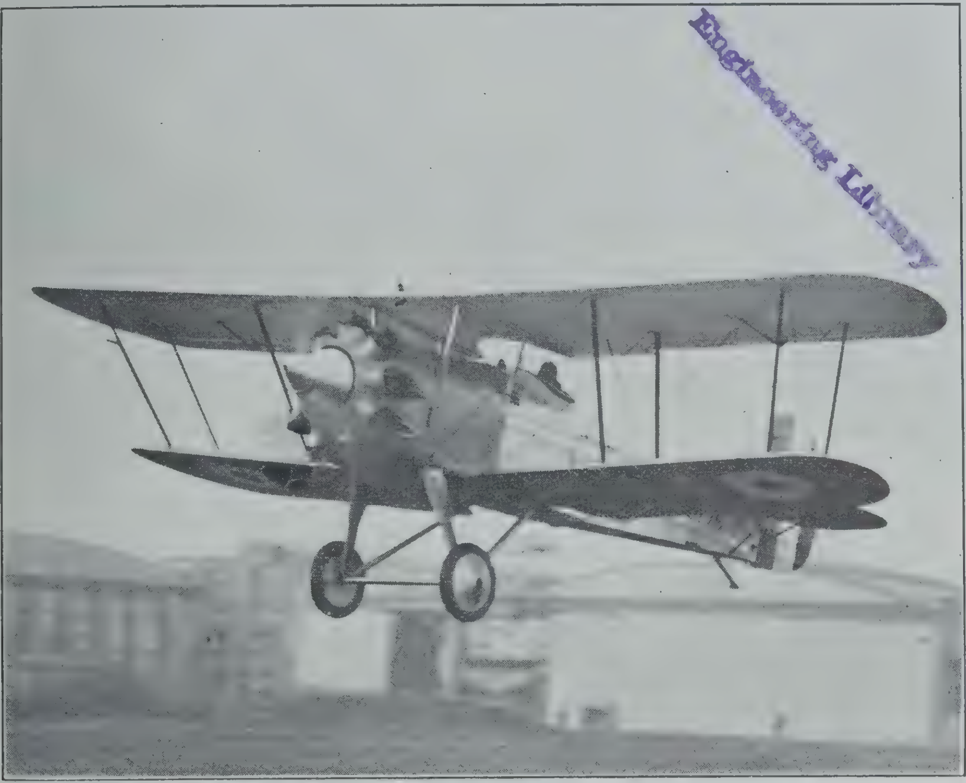

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"Aeroplane" Photograph.

The Hawker "Hawfinch" is a new single-seater machine for day or night fighting, representing the latest developments in this class. It incorporates the Hawker patent system of metal construction, thereby facilitating production and reducing maintenance problems.

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SHORT BROS. (Rochester and Bedford) Ltd., Rochester, Kent.

THE SHORT SINGAPORE (two Rolls-Royce Condor engines) used on Sir Alan Cobham's "Round Africa" flight.

As official aeronautical engineers to the Royal Aero Club in the days before that club had ceased to be essentially a ballooning club, and as the builders of the machine whereon Mr. J. T. C. Moore-Brabazon (now Lt. Col. and M.P.) won *The Daily Mail's* £1,000 prize for the first flight in a closed circuit by an all-British aeroplane in 1909, Short Bros. may claim to be the *doyens* of the British Aircraft Industry.

The position of their earlier works, first at Shellness, later at Eastchurch, both in the Isle of Sheppey, led to a close association of Short Bros. with the more especially naval aspects of aviation, and as a result they were the first producers of practical seaplanes for service in the British Navy, and the pioneers of aircraft having folding wings—a characteristic which made the carriage of aeroplanes on seagoing ships a practical Service proposition.

During the War Short seaplanes played a part in the equipment of the R.N.A.S. which it would be difficult to exaggerate, and machines of their design were used in practically all waters where the British Navy operated.

Since the War they have devoted themselves very assiduously to the development of aircraft of all-metal construction. This work has been faced by many practical difficulties, and to some extent by an attitude of incredulity towards the value of the type of construction which they adopted on the part of their potential customers.

Those difficulties and that attitude have been overcome, the success of Short Bros. type of light alloy construction has been demonstrated beyond question, more particularly perhaps in the domain of seaplane construction. Formerly the gravest doubts were generally felt as to the resistance of aluminium alloys to corrosion by salt water, and therefore the success of Short duralumin seaplane floats, and of their all-duralumin flying-boats is the more conclusive in its effect.

Naturally, the recent flight of the Short Singapore flying-boat round Africa under the command of Sir Alan Cobham has attracted more public attention to the value of flying-boats than has any other performance of recent years. This is largely as it should be. The use of a craft of this type for a journey to Central Africa via the Nile and the Great Lakes is a practical demonstration of the fact that the practical and commercial utility of the seaplane is not wholly confined to the seas, and that in many inland areas it can be used to better advantage than can the land machine.

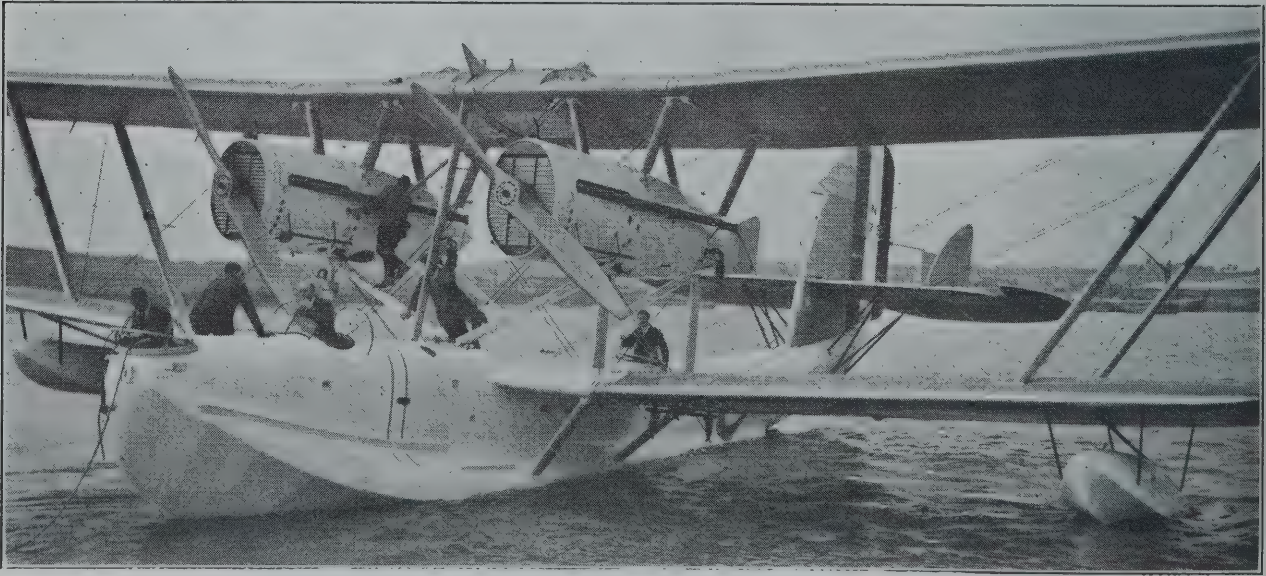
From the point of view of the prospective operator of flying boats this flight of the Singapore may perhaps be regarded more especially as a proof of the durability and reliability of a really well-designed flying-boat of all-metal construction under very adverse conditions.

To the casual observer the difficulties and troubles encountered by this machine at Malta on the outward trip may suggest that the modern flying-boat has not yet achieved a reasonable degree of seaworthiness. This view, however, does not allow for the conditions as they actually were. Malta has no proper accommodation for seaplanes of this size. At the time of the Singapore's arrival weather conditions absolutely abnormal for that place were encountered, and lacking proper shelter, and other facilities, few seagoing craft would have survived the flying-boat's ordeal in a repairable condition.

The fact that the Singapore was in a condition to continue its journey after relatively minor repairs is actually excellent proof of its sturdy sea-worthiness.

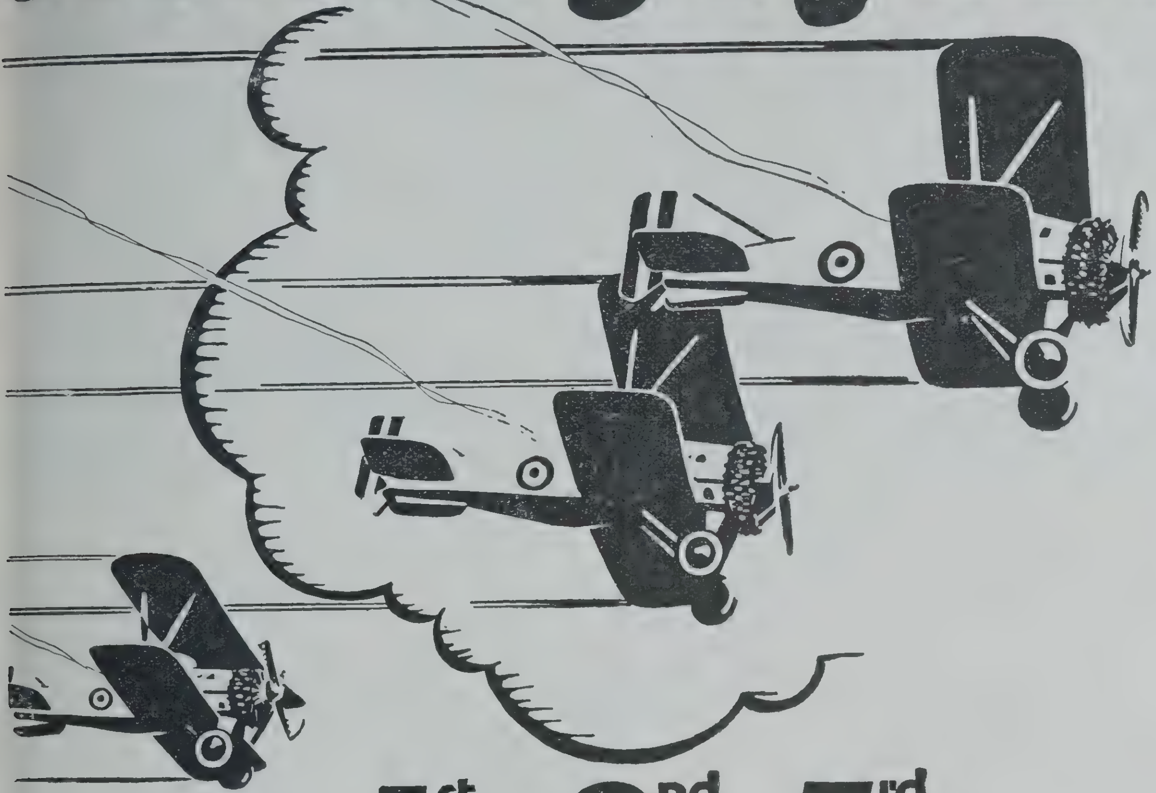
Inspection of the machine after its return to the makers' works at Rochester gives the best possible proof that Short Bros.' sea-going aircraft are able to stand up to the most trying conditions without damage. In the journey just completed the machine has been subjected to all the extremes of climate between those of European winter and the tropical heat of Central Africa. During its journey the machine has—with one short exception—been continuously either afloat on the water or in the air.

The event has shown that corrosion either by salt or fresh water does not occur on seaplanes of Short Brothers' construction.



The Singapore moored out with her crew at work on board.

Siskin Jaguars



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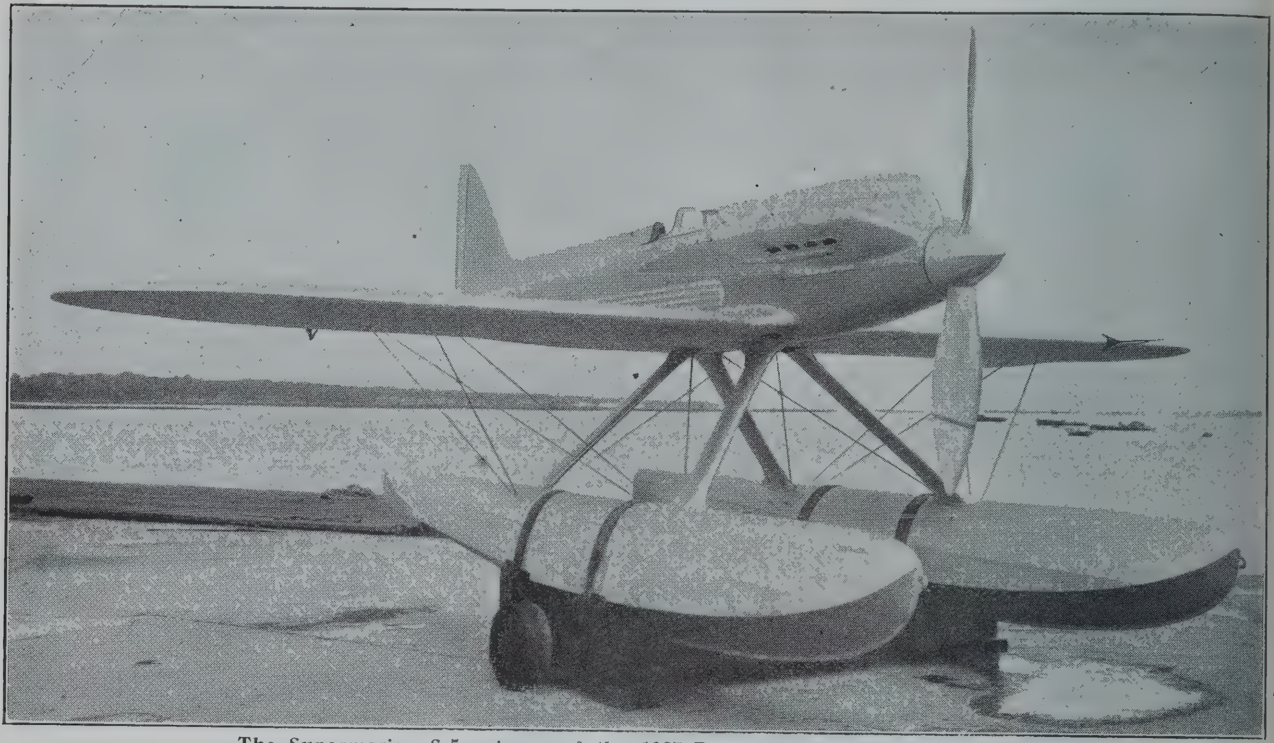


The Supermarine S.5, winner of the 1927 Race for the Schneider Trophy.

The conspicuous successes of two widely different types of Supermarine aircraft, the S.5 seaplane and the Southampton flying-boat again emphasise the premier position of this firm in the design and construction of all types of marine aircraft.

In the Schneider Trophy race the Supermarine Napier S.5's alone completed the course, and thus showed how reliability had been maintained in spite of the exacting requirements of modern high-speed design.

The four metal-hulled Southamptons of the Royal Air Force Far-East Flight have already covered 28,000 miles without incident, and have proved conclusively the value of the large flying-boats for long-distance flights.

On the constructional side the firm has turned over very largely from wood to metal, and has been able to maintain in its metal flying-boats and seaplanes the high standard of efficiency which has become associated with the name Supermarine. Southampton metal hulls, such as are being used on the Far-East Cruise, are now being turned out on a production basis, whilst a considerable amount of work on new and larger hulls is in progress. The S.5 machines had both floats and fuselage in duralumin, and stood up excellently under severe conditions.

The superstructures of several types can now be supplied in metal, and the keynote of all the Supermarine metal wings is simplicity—both in manufacture and inspection. Boxed-in sections, which are fertile sources of corrosion, are studiously avoided. Mild steel has given place entirely to stainless steel, both for machined parts and built-up plate fittings, and rust has thus been entirely eliminated. The firm is carrying out a great deal of metallurgical research, the results of which are being continually incorporated into the designs in hand.

Of the new Service products one only may be mentioned, the Supermarine *Solent*, a three-engined torpedo-carrying and reconnaissance boat. This machine has already successfully carried out its trials, and proved the value of the flying-boat as a torpedo-carrier. This machine is a biplane, fitted with three Armstrong-Siddeley Jaguar engines, and carries two 1,500 lb. torpedoes, one each side of the hull, attached to the bottom centre-section plane. Torpedo winding gear is provided for both torpedoes, which can thus be wheeled under the planes on the slipway, or taken out in a launch, and hauled up on to the racks without the necessity of any extraneous gear.

The specification of this machine when fitted with a wooden hull is as follows:—

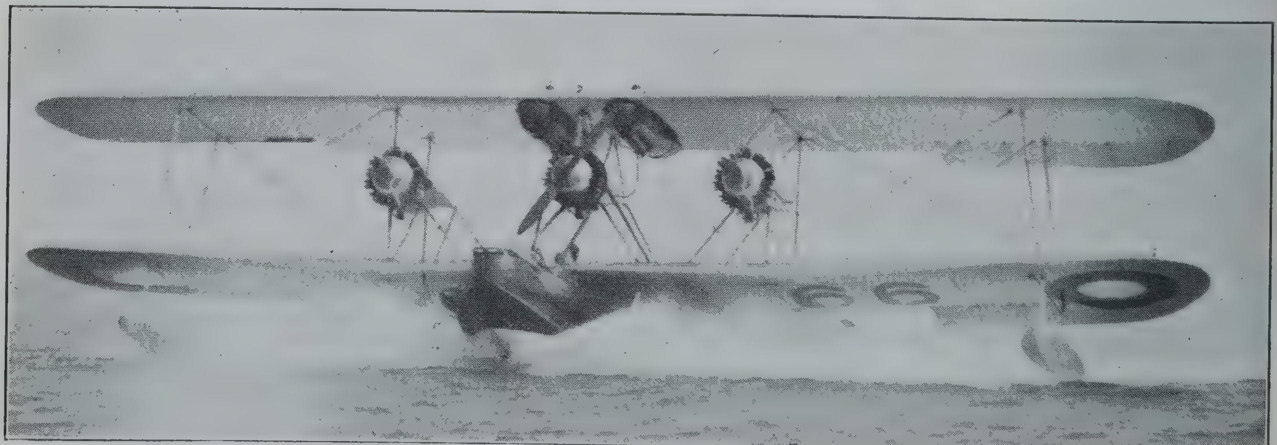
Dimensions.—Span 75 ft. 0 in. (22.8 m.), Length 50 ft. 2 in. (15.3 m.), Height 19 ft. 0 in. (5.8 m.), Wing area 1,576 sq. ft. (146.6 sq. m.).

Weights and Loadings.—Weight empty 9,840 lbs. (4,469 kg.), Normal loaded weight 16,300 lbs. (7,400 kg.), Wing loading 10.3 lbs./sq. ft. (50.5 kg./sq. m.), Power loading 12.9 lbs./h.p. (5.85 kg./h.p.).

Performance.—Max. speed 111 m.p.h. (178.5 km.h.), Landing speed 54 m.p.h. (87 km.h.), Climb to 5,000 ft. (1,525 m.) 10¼ mins., Service ceiling 11,000 ft. (3,360 m.), Range carrying two torpedoes at 90 m.p.h. (145 km.h.) 3½ hours, Range without torpedoes and fuel tanks 11.2 hours at 85 m.p.h.=950 miles (1,530 km.).

On the civil side the Supermarine Aviation Works has launched out with no less vigour, and is putting on the market the largest British civil flying-boat yet built.

This machine, which is a high wing monoplane with hull stabilisers, is fitted with three Bristol Jupiter engines, and can be supplied either as a private air yacht, or as a passenger-carrying flying-boat.



The Supermarine Solent flying-boat (three Armstrong Siddeley Jaguar engines).

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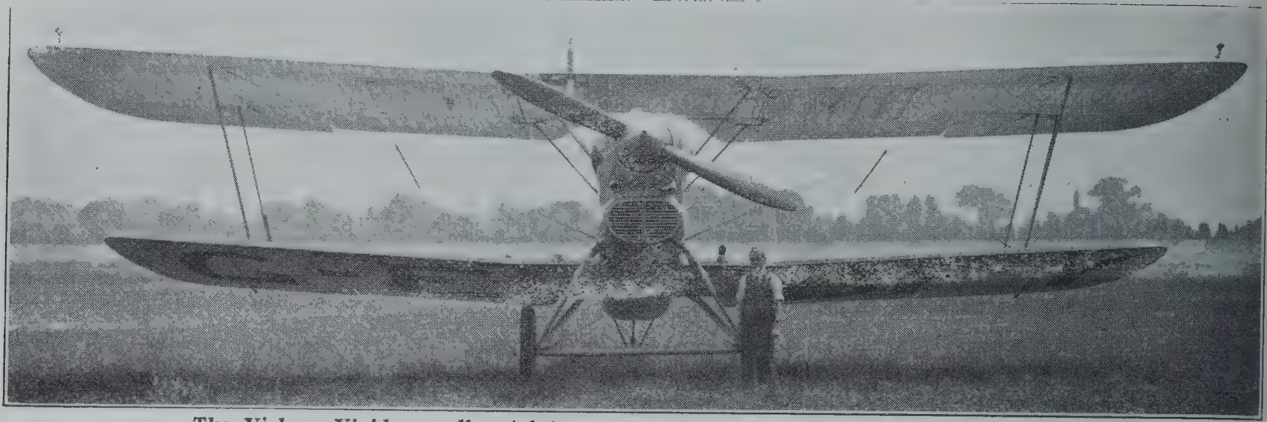


The Vickers Vivid, an all-metal two-seater military machine of very high performance.

Of the most recent of Vickers aircraft, the Vivid—a two-seater high-performance reconnaissance and bombing machine, is perhaps the most generally interesting.

This machine is of all-metal construction, may be fitted with either a wheeled or a float undercarriage, and is fitted with the Napier Lion Series XI engine, developing 590 h.p.

The wing structure is of the single bay biplane type, the upper wing, heavily staggered forward, being of larger span and chord than the lower. Both wings are slightly swept back. The wing spars are of duralumin with flanges of extruded double Tee section with zig-zagged webs of sheet metal rivetted thereto. Ribs are of duralumin tube.

Ailerons of the Frize type, statically balanced to avoid the risk of wing flutter, are fitted on both upper and lower wings.

The fuselage is built throughout of steel tubes, braced by tie rods, and united by fittings machined from solid steel at the more important joints, and by fittings of wrapped steel plate at normal strut joints.

The tail unit is built on duralumin spars with duralumin ribs, generally similar to those used on the wings. Both elevators and rudder are fitted with shielded horn type balance areas.

The land undercarriage is of the split axle type, giving excellent clearance for rough ground, and an unobstructed view for bomb-sighting. Vickers patent oleo-pneumatic shock-absorbers are fitted.

The engine mounting is a framework of steel tube, and carries in addition to the Napier engine an under-slung radiator. A starter crank is fitted to the engine. Two fuel tanks of a total of 130 gallons (592 litres) are built into the upper wings of the machine, and in addition a removable auxiliary tank (85 gallons = 385 litres) is fitted in the fuselage. The feed from this latter tank is by engine-driven petrol pump.

The machine with full tanks has a capacity for 930 lbs. (422 kg.) of military equipment other than crew. It is bonded throughout for wireless and wired for navigation lights. Within the limits of this allowable weight the actual equipment fitted is at the purchaser's option, within a very wide range, and the Vivid may be used for reconnaissance, photography, bombing, fire control, and the like services with equal facility.

As a bomber four 230 lb. (105 kg.) and four 20 lb. (9 kg.) bombs may be carried with a range of 5¼ hours at 100 m.p.h. (161 km.h.).

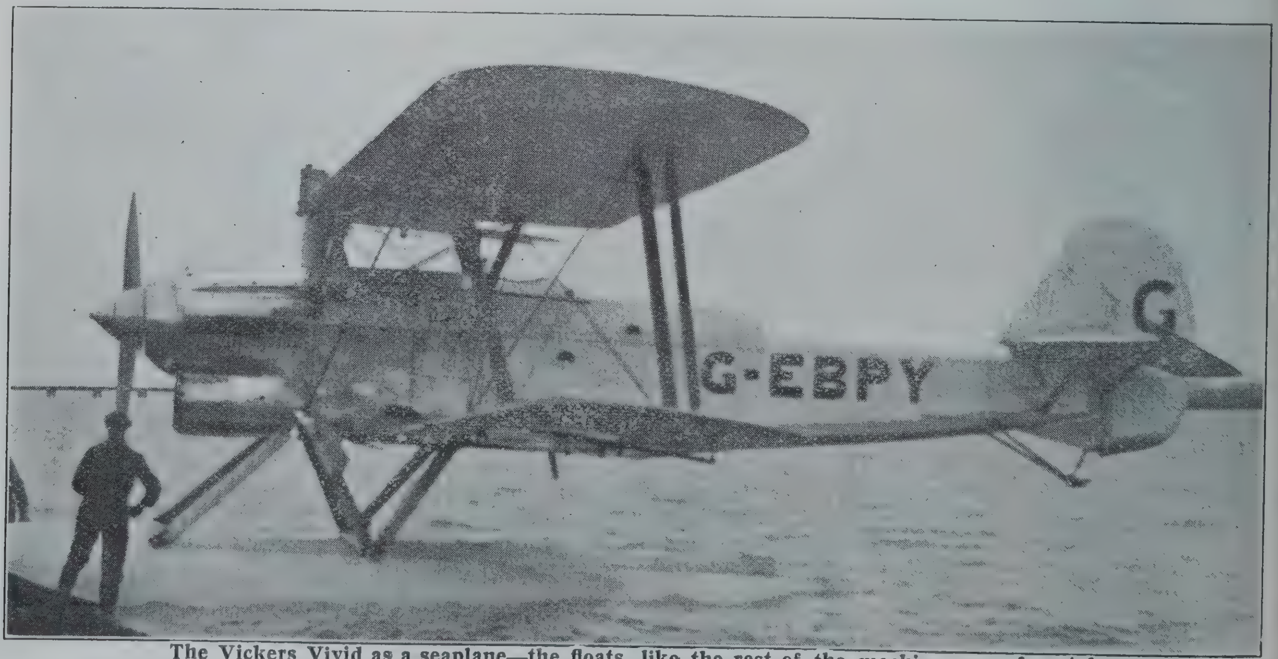
As the appended specification shows, the Vivid has a remarkably fine performance as a land machine. As a seaplane the performance is reported to be relatively at least equally good, but unfortunately complete data concerning the seaplane version may not yet be published.

SPECIFICATION OF THE VIVID LAND MACHINE.

Dimensions.—Span (upper) 45 ft. 1 in. (13.72 m.), Span (lower) 39 ft. 7 in. (12.06 m.), Length 34 ft. 5 in. (10.49 m.), Chord (upper) 8 ft. 3 in. (2.51 m.), (lower) 7 ft. (2.13 m.), Wing area 593 sq. ft. (58 sq. m.).

Weights and loadings.—Weight empty (including water) 3,560 lbs. (1,613 kg.), Total disposable load 1,990 lbs. (905 kg.), Loaded weight 5,550 lbs. (2,518 kg.), Wing loading 9.35 lbs./sq. ft. (45.75 kg./sq. m.), Power loading 9.4 lbs. (4.27 kg.) per h.p. (590 b.h.p.).

Performance.—Max. speed 153 m.p.h. (247 km.h.), Speed at 5,000 ft. (1,525 m.) 150 m.p.h. (242 km.h.), at 10,000 ft. (3,050 m.) 145 m.p.h. (234 km.h.), at 15,000 ft. (4,570 m.) 138 m.p.h. (223 km.h.), Landing speed 59 m.p.h. (95 km.h.), Climb to 10,000 ft. (3,050 m.) 10 mins., to 15,000 ft. (4,570 m.) 18 mins., Ceiling (absolute) 20,100 ft. (6,600 m.), Range at full throttle (85 gallons petrol) 540 miles (870 km.).



The Vickers Vivid as a seaplane—the floats, like the rest of the machine, are of metal.

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Engineering Library

MILITARY TRIALS 1912 — BRISTOL MONOPLANE.

Sixteen years ago the Bristol Aeroplane Company Ltd. insisted on the same high standard of finish as they do to-day. For this reason they used then, as they still do, for all machines of their own design

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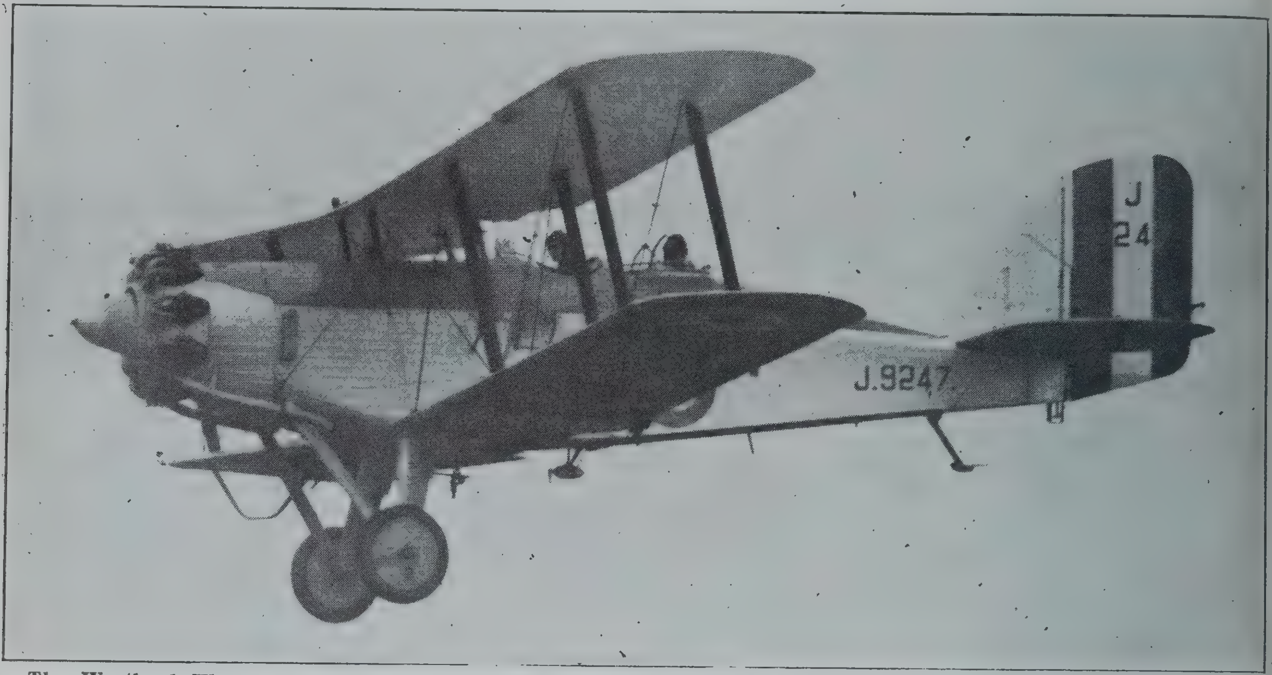
THE WESTLAND AIRCRAFT WORKS, Yeovil, Somerset.



The Westland Wapiti two-seater General Purposes machine (Bristol Jupiter engine).—(*"Aeroplane" photograph.*)

The Westland Aircraft Works—a branch of the well-known engineering firm of Petters Ltd.—are the designers and manufacturers of a long series of successful aircraft of all types. Of their present products the most generally interesting is undoubtedly the Westland Wapiti, a two-seater military machine, suitable for a wide variety of services, and at present being made in quantity for the Royal Air Force as a General Purposes machine.

The Wapiti is of the normal equal-winged two-bay biplane type, built either in a mixed timber and metal or in an all-metal type. It is fitted with a Bristol Jupiter engine—normally of the Series VI type—with the Series VIII geared Jupiter as an alternative power plant, which will give the machine an even higher performance.

In the structural design very great care has been taken to ensure simplicity of inspection and upkeep, and ease of repair in case of damage, and in the general layout the arrangement of all controls and equipment has been studied to give the utmost facilities for the efficient performance of the varied duties which this type of machine is expected to undertake.

In both the mixed and the all-metal types of construction the two forward sections of the fuselage, which are the engine mounting and the section thence to the rear of the pilot's cockpit, are built up of square section tubes of steel or duralumin in accordance with the loads borne by individual members, united by flitch plates and tubular rivets. Butt-jointing of the tubes does not occur in these fittings, the rivets being designed to take the whole of the working loads. Consequently no accurate fitting is needed on these members, and the replacement thereof is a very simple matter.

In the all-metal type the third or rear section of the fuselage is of similar construction to the two front sections. In the mixed type wooden longerons and struts are used for this part.

All cowling panels over the forward section of the fuselage are easily removable, and arrangements have even been made whereby the petrol tanks may be removed from the fuselage within a few minutes.

As already mentioned, the machine is arranged for a very extensive and adaptable equipment. For defensive purposes a synchronised machine-gun, controlled by the pilot, is fitted to fire forward, and the observer has a movable gun on a ring mounting. Accommodation is provided for 600 rounds for the forward gun and for six trays for the after gun.

Bomb-racks for a total of 580 lbs. of bombs are carried below the wings and fuselage. These are all easily detachable, for occasions when they are not required. The observer, in the prone position, is provided with excellent facilities for the use of bomb-sights.

Wireless transmission and receiving gear is fitted in the upper decking of the fuselage behind the observer, where it is easily accessible in a comfortably seated position.

For use in outlying and desolate countries, when long flights over deserts and the like may be necessary, the machine has been designed to carry an additional load of 600 lbs. in the form of fuel, oil, rations, bedding, and spares.

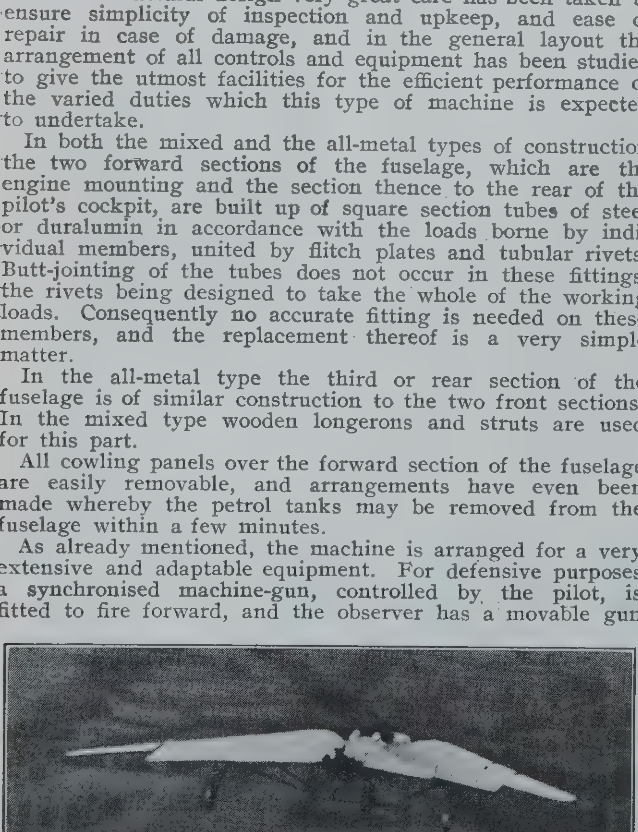
This added load comprises an auxiliary fuel tank and its contents, a spare wheel and tail-skid, a fitter's tool-box, a supply of engine spares, normal and emergency rations for the crew, water, and personal equipment and bedding for the crew. All the structural gear needed for carrying this equipment is readily removable, so that no extra weight need be carried when the equipment itself is not in use.

Moreover, the whole of this extra load has been so carefully arranged not to add to the machine's resistance that there is a difference of only 3 m.p.h. (5 km.h.) in the speed at 10,000 ft. (3,050 m.) with and without this special equipment.

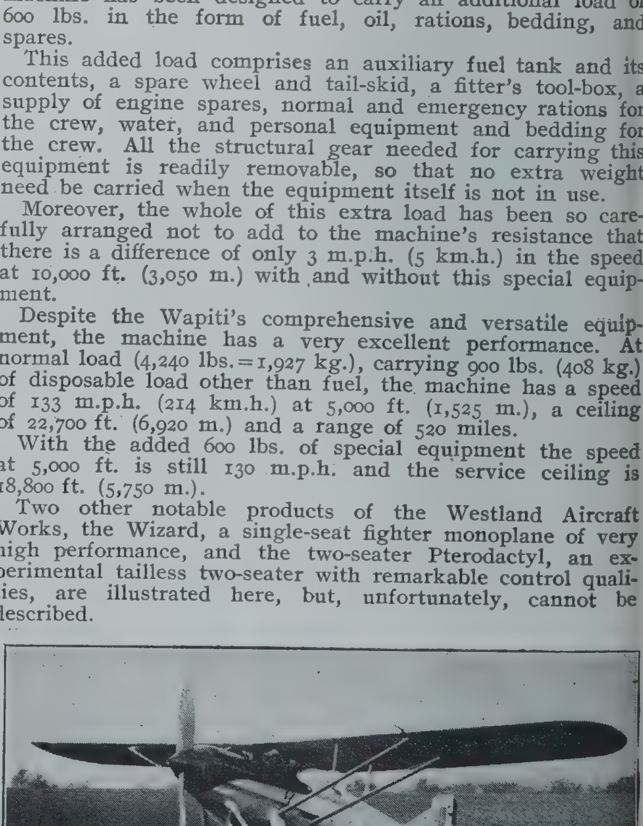
Despite the Wapiti's comprehensive and versatile equipment, the machine has a very excellent performance. At normal load (4,240 lbs. = 1,927 kg.), carrying 900 lbs. (408 kg.) of disposable load other than fuel, the machine has a speed of 133 m.p.h. (214 km.h.) at 5,000 ft. (1,525 m.), a ceiling of 22,700 ft. (6,920 m.) and a range of 520 miles.

With the added 600 lbs. of special equipment the speed at 5,000 ft. is still 130 m.p.h. and the service ceiling is 18,800 ft. (5,750 m.).

Two other notable products of the Westland Aircraft Works, the Wizard, a single-seat fighter monoplane of very high performance, and the two-seater Pterodactyl, an experimental tailless two-seater with remarkable control qualities, are illustrated here, but, unfortunately, cannot be described.



The new Westland-Hill Pterodactyl.—(*"Aeroplane" photograph.*)



The Westland Wizard.

THE ROYAL AIR FORCE.

The London Gazette.

June 26.

eneral Duties Branch.—The following are granted temp. comns. Flg. Offs. on attachment for duty with the R.A.F. (June 17) :— , R.N.—R. H. S. Roundell. Sub-Lts., R.N.—P. W. Humphreys, H. M. Kendall.

he following Plt. Offs. are promoted to the rank of Flg. Off. :— V. Forbes, R. C. Greenhalgh (Jan. 14); A. P. de Woulfe Wytt, P. Hudson (April 10); W. R. Baird (May 25); W. C. Cooper, C. W. cken (June 11). Plt. Off. on probation A. E. J. Pratt is confirmed rank (May 2)

he following Plt. Offs. on probation relinquish their S.S. comns. on count of ill-health :—J. G. Walling (June 23); R. E. S. M. Vinning ne 27).

he S.S. comns. of the following Plt. Offs. on probation are ter- nated on cessation of duty (June 27) :—D. A. Forbes, M. M. Freeman.

e following Flg. Offs. are transferred to the Reserve, Class A :— J. Wiltshire (June 17); C. L. Lowe, D.F.C. (June 25).

tores Branch.—Flg. Off. E. H. Broad is transferred to the Reserve, ass C (June 20).

edical Branch.—Flg. Off. J. Hill, M.B., is promoted to the rank Flt. Lt. (June 27); Flg. Off. (Quartermaster) W. Gamblen is pro- oted to the rank of Flt. Lt. (Quartermaster) (July 1).

emorandum.—The permission granted to Sec. Lt. H. S. Greening retain rank is withdrawn on conviction by the Civil Power ay 24).

eserve of Air Force Officers.—General Duties Branch.—A. C. S. win is granted a comn. in Class A as Flg. Off. on probation (June 26); R. M. Garratt is granted a comn. in Class A.A. (ii) as Plt. Off. probation (June 14); Plt. Off. H. N. Miller is promoted to the nk of Flg. Off. (June 21); Flg. Off. H. C. Adam is transferred from ass A to Class C (June 8); Plt. Off. T. P. Jenkins relinquishes his mn. on completion of service (May 22). The comn. of Plt. Off. probation G. T. Clark is terminated on cessation of duty (June 26).

tores Branch.—Sq. Ldr. E. Rivers-Smith, M.B.E., relinquishes his mn. on completion of service and is permitted to retain his rank ine 17).

uxiliary Air Force.—General Duties Branch.—The following to Plt. Offs. :—No. 601 (City of London) (Bombing) Squadron.—E. A. ntington-Whiteley (June 7). No. 605 (County of Warwick) ombing) Squadron.—J. R. H. Baker (June 14).

Appointments.

Week ending July 2.

eneral Duties Branch.—Flight Lieutenants H. G. White, to Home rcraft Depot, Henlow, 19/5. R. Harrison, D.F.C., to R.A.F. Depot, xbridge, 25/5. J. Cottle, M.B.E., D.F.C., to A. and G. School, Eastchurch, 18/5. C. E. Williamson-Jones, D.F.C., to Home Aircraft Depot, enlow, 20/6. W. E. Knowlden, to E. and W. School, Flowerdown, 6. M. W. C. Ridgway, to Home Aircraft Depot, Henlow, 14/6. . V. Pendavis, D.S.O., to School of Army Co-operation, Old Sarum, /6.

Flying Officers R. H. W. Empson, to R.A.F. Practice Camp, Sutton idge, 18/6. F. Porter, to R.A.F. Base, Gosport, 5/7. I. W. C. ackenzie, to A. and G. School, Eastchurch, 21/6. C. I. A. Jackson, No. 4 Sqdn., S. Farnborough, 18/6. J. W. White, to No. 3 F.T.S., rantham, 22/6. K. Maconochie, to R.A.F. Depot, Uxbridge, 4/5. G. M. Anderson, to R.A.F. Depot, Uxbridge, 3/6.

Pilot Officers M. M. Freeman, to R.A.F. Depot, Uxbridge, 4/6. P. Barker, to No. 58 Sqdn., Worthy Down, 18/6. E. S. Bateman, . Dickson and W. R. Monro Higgs, to No. 13 Sqdn., Andover, 18/6. . G. Bircham, to No. 100 Sqdn., Bicester, 18/6. R. W. P. Collings, J. Davidson and A. C. Pearson, to No. 39 Sqdn., Bircham Newton, /6. H. W. Duffey, D. G. P. Fitzpatrick, N. H. Fresson, M. R. elly and W. P. J. Thomson, to No. 2 Sqdn., Manston, 18/6. F. G. errier, A. L. T. Naish and R. W. A. Stroud, to No. 11 Sqdn., etheravon, 18/6. T. L. Harrison, B. D. Nicholas and A. M. Stevens, No. 502 Sqdn., Aldergrove, 18/6. M. G. R. Harris and L. W. W. odley, to No. 9 Sqdn., Manston, 18/6. A. T. C. Hazledine, to No. 10 qdn., Upper Heyford, 18/6. D. I. Stewart, to No. 99 Sqdn., Upper eyford, 18/6. N. E. Whalley, to No. 207 Sqdn., Eastchurch, 18/6.

The Half-Yearly Pr motion List.

The Air Ministry announces that the undermentioned are romoted with effect from July 1, 1928 :—

General Duties Branch.

Air Commodore to Air Vice-Marshal.—F. C. Halahan, C.M.G., C.B.E., .S.O., M.V.O.

Group Captain to Air Commodore.—F. W. Bowhill, C.M.G., D.S.O.

Wing Commanders to Group Captains.—C. D. Breese, A.F.C., W. H. rimrose, D.F.C., H. R. Busteed, O.B.E., A.F.C., J. S. Barratt, C.M.G., .C., J. R. W. Smyth-Pigott, D.S.O., E. L. Gossage, D.S.O., M.C.

Squadron Leaders to Wing Commanders.—L. T. N. Gould, M.C., B. Graham, M.C., A.F.C., J. McCrae, M.B.E., G. W. Murlis-Green, .S.O., M.C., W. V. Strugnell, M.C., P. A. O. Leask, K. C. Buss, K. Wells, A.F.C., J. C. M. Lowe, F. Sowrey, D.S.O., M.C., A.F.C.

Flight Lieutenants to Squadron Leaders.—E. C. Emmett, M.C., .F.C., R. S. Aitken, M.C., A.F.C., H. A. Smith, M.C., J. V. Read, .B.E., W. E. G. Bryant, M.B.E., O. C. Bryson, M.C., D.F.C., A.M., . J. Silly, M.C., D.F.C., C. H. Awcock, O.B.E., A. H. Orlebar, A.F.C., E. Maitland, A.F.C., J. H. Green, B. McEntegart, C. L. King, .C., D.F.C., C. R. Carr, D.F.C., A.F.C.

Flying Officers to Flight Lieutenants.—S. J. Bailey, J. Silvester, . S. Sandiford, H. E. King, J. Noonan, D.S.M., V. Croome, M. S. eogh, A.M., J. J. Teasdale, P. J. R. King, C. M. E. Gifford (Hon. lt. Lt.), J. E. L. Drabble, H. L. Beatty, E. H. M. David, G. H. tainforth, R. Stiven (Hon. Flt. Lt.), E. A. Sullock, A.F.C., J. G. lurray, J. Harston, M. V. Ward, N. C. Ogilvie-Forbes, M. H. arnons-Williams, A. W. Bates (Hon. Flt. Lt.), F. H. Woolliams, F. C. Farrington, M.C., G. C. Shepherd, G. N. Carroll (Hon. Flt. Lt.), M. Wiblin, C. B. Greet, P. J. A. Hume-Wright, R. H. S. Spaight, B. V. Reynolds, E. V. Major (Hon. Flt. Lt.), F. W. Wiseman-Clarke (Hon. Flt. Lt.), A. H. J. Howlett, L. K. Barnes, D. MacFadyen, W. L. Dawson, V. B. Bennett, C. B. R. Pelly, D. L. G. Bett, C. S. Riccard, C. E. N. Guest, F. R. D. Swain, F. E. Watts, E. R. Maddox, M.C., R. Y. Eccles, R. V. M. Odbert, D. J. Stewart (Hon. Flt. Lt.), W. Wynter-Morgan, M.C.

Captain, R.M., Flg. Off., R.A.F., to be Flt. Lt.—H. M. A. Day, A.M.

Lieuts., R.N., Flg. Off., R.A.F., to be Flt. Lts.—R. R. Graham, M. S. Slattery.

Supplementary List.

Flight Lieutenant to Squadron Leader.—G. S. Reed, O.B.E.

Flying Officer to Flight Lieutenant.—E. J. Howes.

Stores Branch.

Wing Commander to Group Captain.—C. G. Smith, O.B.E.

Squadron Leader to Wing Commander.—W. Millett.

Flight Lieutenants to Squadron Leaders.—W. C. Green, M.C., F R. Wilkins, W. R. P. Allen, T. E. Drowley.

Flying Officers to Flight Lieutenants.—W. J. Cleasby, C. E. Tidy, J. J. Ironmonger, E. V. E. Andrewartha, R. G. Sims, R. W. Stevenson, A. H. Allan, H. Cartwright, V B. Ranford, D. W. Dean, L. T. Sanderson, D.S.M., W. Best.

Accountant Branch.

Flight Lieutenant to Squadron Leader.—I. L. Wincer.

Flying Officers to Flight Lieutenants.—F. H. Wakeford, F. C. Chalmers, R. G. Dyer, W. A. Wadley, F. C. Langley.

Medical Branch.

Squadron Leader to Wing Commander.—R. H. Knowles, M.D., D.P.H.

Flight Lieutenant to Hon. Squadron Leader.—C. A. E. I. Brownlee, M.B.

Princess Mary's Royal Air Force Nursing Service.

Senior Sister (Acting Matron) to Matron.—Miss M. Moddrel.

Senior Sister to Acting Matron.—Miss W. E. Molesworth.

Sister (Acting Senior Sister) to Senior Sister.—Miss B. C. S. Forsyth.

Fatal Accidents.

The Air Ministry regrets to announce that as the result of an accident near Amman to a D.H.9a machine of No. 14 (Bombing) Squadron, Amman, on June 26, Plt. Off. John Henry Lorraine Maund, the pilot of the aircraft, and 363194 AC.1. Jack James Heatherstone Middleton were killed.

The Air Ministry regrets to announce that as the result of an accident at Clifton, near Henlow, to an Avro machine of the R.A.F. Practice Camp, Sutton Bridge, on July 1, Flt. Lt. Harold Charles Calvey, the pilot of the aircraft, and 3720 F-S. William Charles Hollier were killed.

The Far East Flight.

The four metal Supermarine Southampton flying-boats of the Far East Flight, R.A.F., which is commanded by Group Capt. H. M. Cave-Browne-Cave, D.S.O., D.F.C., arrived at St. Kilda, Port Philip Bay, on June 29.

The Flight was escorted by sixteen machines of the Royal Australian Air Force. The machines of the Far East Flight were taken to Point Cooke for overhaul and the cruise will not be continued for two months.

Vacancies for Aircraft Apprentices.

The Air Ministry announces that six hundred aircraft apprentices, between the ages of 15 and 17, are required by the R.A.F. for entry into the Schools of Technical Training at Halton, Bucks., and at Flowerdown, near Winchester. They will be enlisted as the result of an Open Competition and of a Limited Competition held by the Civil Service Commissioners and the Air Ministry respectively. Successful candidates will be required to complete a period of 12 (twelve) years' regular Air Force service from the age of 18, in addition to the training period. At the age of 30 they may return to civil life or may be permitted to re-engage to complete time for pension.

Full information regarding the aircraft apprentice scheme, which offers a good opportunity to well-educated boys of obtaining a three years' apprentice course of a high standard and of following an interesting technical career, can be obtained on application to the R.A.F., Gwydyr House, Whitehall, London, S.W.1.

R.A.F. SPORTS AND PASTIMES.

Athletics in the Middle East.

The R.A.F. Middle East Command Athletic Championship Meeting was held at Heliopolis on April 25 and 26.

No. 4 Flying Training School, Abu Sueir, won the Inter-unit Challenge Cup with 23 points. The best all-round athlete of the meeting was F-S. Fretwell, of No. 216 (Bombing) Squadron, who scored 8 points.

The results were as follows :—

100 Yards.—1, L-AC. Truman (L-Z, No. 4 F.T.S.); 2, Plt. Off. Richardson (L-Z, No. 4 F.T.S.); 3, F-S. Fretwell (216 Sqdn.). *220 Yards.*—1, Plt. Off. Richardson (L-Z, No. 4 F.T.S.); 2, L-AC. Trueman (L-Z, No. 4 F.T.S.); 3, Sjt. Phillips (C, R.A.F. Depot). *440 Yards.*—1, Sjt. Howse (A-K, No. 4 F.T.S.); 2, L-AC. Lisle (L-Z, No. 4 F.T.S.); 3, L-AC. Lindgren (B2, R.A.F. Depot).

Half-mile.—1, Sjt. Howse (A-K, No. 4 F.T.S.); 2, L-AC. Lisle (L-Z, No. 4 F.T.S.); 3, Sjt. Wright (208 Sqdn.). *One Mile.*—1, L-AC. Morgan (B2 Sqdn., R.A.F. Depot); 2, Sjt. Wright (208 Sqdn.); 3, L-AC. Hodder (A-K, No. 4 F.T.S.).

Relay Race.—1, 208 Sqdn.; 2, L-Z, No. 4 F.T.S.

120 *Yards Hurdles.*—1, F-S. Fretwell (No. 216 Sqdn.); 2, L-AC. Ousley (H.Q.M.E.); 3, L-AC. Aitken (A, R.A.F. Depot). *Long Jump.*—1, Cpl. Floyd (B1, R.A.F. Depot); 2, F-S. Fretwell (216 Sqdn.); 3, Plt. Off. Richardson (L-Z, No. 4 F.T.S.). *High Jump.*—1, Cpl. Floyd (B1, R.A.F. Depot); 2, L-AC. Nottage (A.H.Q.); 3, L-AC. Martin (H.Q.M.E.).

Putting-the-Weight.—1, Sjt. Mackay (L-Z, No. 4 F.T.S.); 2, F-S. Fretwell (216 Sqdn.); 3, Cpl. Brerton (B2, R.A.F. Depot).

Tug-of-War.—Winner, No. 45 Sqdn.; Runner-up, B1, R.A.F. Depot.

Cricket at Malta.

A friendly one-day cricket match was played at Marsa on June 18 between the Navy and the R.A.F. The strength of the two Services at present in Malta are in the proportion of about 20 to 1 in favour of the Navy. The R.A.F. won by eight wickets. The Navy won the toss and were dismissed for 75. Then the R.A.F. went in and scored 120, L-AC. Langhorn contributing 41 and Lt. Pugh (Flg. Off., R.A.F.) 37. The Navy went in again and declared at 110. The R.A.F. then made 66 for three wickets. L-AC. Langhorn made 40 of these. L-AC. Dawkins took six wickets for 38 runs in the first innings, and L-AC. Macpherson took four wickets for 37. In the second innings Dawkins took two wickets for 51 runs, and Macpherson took six for 54.

SOME PROBLEMS OF AN ARMY AIR ARM.

In a short article in the April 1928 issue of *The Journal of the United Service Institution of India* Major E. J. Strover, 3/20th Burma Rifles, discusses the possibility of an Army Air Arm. He says that no responsible Army officer wishes to abolish the Air Ministry and Air Staff and to divide the whole of the R.A.F. between the Army and the Navy, but that the demand exists that the Army Co-operation Squadrons should be under the control of the Army as the Fleet Air Arm is under the control of the Navy.

He claims that a General can make more use of a squadron of aeroplanes if it is completely under his command than if it is merely co-operating with him. He adds that Army officers would feel more secure if they knew that the pilots of aircraft who had trained with them in peace would not be taken away from them in war.

Major Strover, who examines the problem from all angles, says that the point not generally realised in the Army is that it is not necessary for the pilot of an Army co-operation aeroplane to have been trained in the Army. He says:—

> The results of fourteen years' experience in the Royal Air Force has proved beyond doubt that no man can make deductions in the air. The pilot of an aeroplane can only see a portion of the enemy's troops. To make deductions of the enemy's disposition from the position of such troops as happened to be exposed to his views when he flew over them, is extremely dangerous and likely to mislead the army commander. The only man who can make deductions with any reasonable certainty is the Staff Officer on the ground who receives information from all sources, not from one aeroplane only, but from several aeroplanes, from cavalry, infantry and armoured cars. For this reason pilots of army co-operation aircraft are taught to report exactly what they see and to surmise nothing.

One suggests that trained observers, rather than pilots, should do the reporting.

With regard to the practicability of an Army Air Arm, Major Strover considers that it is doubtful whether sufficient officers could be obtained for it. He says that no officer could be spared from the Indian Army, and he considers it unlikely that the Army Air Arm would attract the boys who go to Cranwell. He concludes therefore (A) that it would be a considerable advantage to the Army to possess its own Air Arm, but that it is not a vital necessity; and (B) it is probable that the Army could not find sufficient officers for its Air Arm.

Major Strover also considers that by possessing its own Air Arm the Navy has sacrificed much of the good feeling and anxiety to co-operate which formerly existed between the Navy and Air Force. In almost any future war the Navy will require the co-operation of shore-based aircraft and of flying-boats and seaplanes, and if the co-operation is no better then than it is at present the Navy will have lost more than it has gained.

Co-operation between the Army and the Air Force would be even more important because an Army Air Arm would be unable to function unless the R.A.F. could secure it from hostile air attack. The Army therefore must be careful how it follows the lead of the Navy.

Major Strover maintains that co-operation between different Services is not natural to British officers because the British officer is naturally individualistic, and his public-school training teaches him to be loyal to his own particular crowd while regarding the other crowd with tolerant and good-natured contempt. Co-operation between the Services must be assiduously cultivated, and nothing which is gained must ever be lost.

THE NEW MACHINE PARK.—On the far left is the Handley Page Hinaidi, No. 13 is the B. and P. Sidestrand, No. 11 is the Vickers Vellore. The black machine is

CASTLE BROMWICH
AIR PAGEANT
JUNE 9th

Air League Challenge Cup

1st Sqdn. Leader Probyn **2nd** Norman Jones, Esq.
SECOND SUCCESSIVE WIN 1927-1928

Midland Inter-Club Handicap

1st Newcastle Club **2nd** Norman Jones, Esq.

Midland Open Challenge Cup

2nd Nottingham Club **3rd** Sqdn. Leader Probyn

Six more successes

on

Pratts

At last!

A Woman flies the Atlantic

The Spirit used by Miss Earhart in her Seaplane "Friendship" was from the producers of

Pratts

OUR TRANS-ATLANTIC GUESTS.

On July 2 Baron von Hünefeld and Captain Köhl, accompanied by Commandant Fitzmaurice of the Irish Free State, all three of whom had flown the Atlantic from Ireland to Labrador on April 12-13 in a Junkers monoplane, arrived at Croydon on their way to Ireland. They were entertained at lunch at the Savoy by the R.Ae.C., the R.Ae.S., the Air League and the S.B.A.C. Owing to a head wind they did not arrive at Croydon till 14.15 hours, so the lunch was somewhat delayed.

Lord Thomson in the Chair welcomed them, saying that they had displayed the urge to achieve which distinguished human beings of the better type from the beasts that perish. He said that they were members of a somewhat ghostly company of men and women who had tried to fly the Atlantic from East to West and had died in the attempt. He liked to think that in years to come when passengers crossed in luxury and comfort they would be haunted by the ghosts of 20th century "Flying Dutchmen."

Baron von Hünefeld had shown enterprise and vision and was a worthy sportsman. Of Capt. Köhl it was difficult to speak with moderation. His piloting for so many hours and landing on unknown ice was a feat of airmanship which was artistic. As for Commandant Fitzmaurice people in the West of Ireland always tried to go further West and he had gone West faster than any of his countrymen. He congratulated them all on behalf of the associations represented. He would not wish them repose and ease, he wished them every success in new achievements.

Commandant Fitzmaurice said that their flight might be regarded as a stunt or as a sporting endeavour. If they had been able to afford three engines they would have had them. The fact that they had all made previous attempts and had returned owing to bad weather at any rate showed intelligence. He said that he himself had done three-hour spells at the controls turn-and-turn-about with Köhl. If they had had directional wireless they would not have gone where they did but would have been in New York next morning.

He prophesied regular trans-Atlantic air services within ten years. The great need was the study of meteorology. And he bore witness to the absolute accuracy of Mr. Entwistle's reports 24 hours ahead. He said that scientists had given various reasons for Newfoundland fogs, but the best was given by an old fisherman, who said that God put them there to hide Newfoundland and Labrador because he was ashamed of having made them.

Captain Köhl made a neat little speech of thanks.

Baron von Hünefeld humorously remarked that he respected Commandant Fitzmaurice because he had spoken English ever since he was a very small child (presumably he has since been compelled to learn Irish). He himself had learned Irish-English from their companion and had learned American-English in America. (Nevertheless he speaks extraordinarily good German-English without a tinge of either Irish or American.) He expressed his happiness in being in the Motherland of sport and fair play.—C. G. G.

A RAIL-AND-AIR LINE.

Among the many interesting visitors from the United States who have called on The Aeroplane recently have been Mr. Charles S. Jones, familiarly known as "Casey" Jones, Assistant Sales Manager of the Curtiss Aeroplane and Motor Co. Inc., with Mr. Charles H. Mathews, Junior, of Philadelphia, Assistant General Traffic Manager of the Pennsylvania Railroad, and Major C. E. McCullough, of Washington, D.C., General Passenger Agent of the same railroad. These three are making a tour of Europe to study air transport in all its phases.

What Mr. Casey Jones does not know about flying is hardly worth mentioning, and Major McCullough and Mr. Mathews have an equally wide knowledge of the traffic problems of railways. So the tour should be fruitful.

The basic reason for their visit to Europe is that the Pennsylvania Railroad, the Santa Fé Railroad, the Curtiss Aeroplane and Motor Co. Inc., the Wright Aeronautical Corporation, and National Air Transport Inc., together with a group of banking interests, are organising a coast-to-coast passenger and express service, using the railroad and aircraft in conjunction.

The proposed schedule is that passengers will leave New York in the evening by train and will detrain at Columbus, Ohio, at 08.00 hours next morning. There they will be taken by aeroplane over a stage which will enable them to overtake the evening train which left New York 24 hours earlier than they did. Spending the night in that train they will reach next morning another point from which they will overtake yet another train which started 48 hours in front of them. After a night in that train they will finish the journey to the Pacific coast by air, taking 2½ days over the journey instead of about 4½.

During a visit of about four days in England the party was shown the workings of Imperial Airways by Lt.-Col. Birchell, and visited most of the important people concerned with British Aviation. They left for Holland by air to investigate K.L.M. methods, and thereafter went to Germany to see the ways of the Luft Hansa.

MR. LESTER GARDNER'S MOVE.

His many friends on this side of the Atlantic will be glad to hear that Mr. Lester D. Gardner, lately publisher and proprietor of *Aviation*, the leading American aircraft paper, has accepted the post of President of Aeronautical Industries Inc., 292, Madison Avenue, New York.

Mr. Gardner had intended paying a visit to England in June this year and was in fact on the point of sailing when this financial proposition was put before him. Not being oneself a financier, one does not quite understand the method on which this corporation intends to work. But one gathers from *The New York Evening Post* that 100,000 shares in the firm have been allotted, and one is told that these represent 2,000,000 dollars' worth of stock, or, say, roughly £400,000 worth.

The corporation has been formed for the purpose of affording the American public an opportunity to make what is called "a cross-section investment" in the aeronautical industry. The money subscribed by the investors in Aeronautical Industries Inc. will be invested by a committee appointed for that purpose in the securities of various corporations engaged in the manufacture of aircraft, aero-motors, and aeronautical accessories. It may also be invested in air lines, either for the carrying of mail, express goods or passengers, either in America or abroad. It may be invested in the development of airports or in fact in any other phase of aeronautical industry.

The promoters state openly that they do not expect to pay dividends on the stock for some time to come, as obviously the securities which will be held by the corporation represent industries which are putting their surplus largely back into the business, or "plowing it in," as the Americanism has it. They expect quite reasonably that the appreciation in the market value of the shares will be in direct proportion to the growth and development of the industry itself.

One of the chief charms about an investment of this kind is that the holders of the shares will be protected, by the investment of the corporation's funds in a number of firms, against the risk which would attend an individual investor putting all his money into one particular firm in the aircraft industry. Possibly the corporation may make losses on its investments in certain firms, but, acting as it does on the advice of a committee, and having at its call the intimate knowledge of Mr. Lester Gardner of everything concerned with the aircraft industry of all countries, it is pretty well bound to make a profit on its all-round dealings.

One gathers that the corporation's activities will by no means be confined to dealings in America. In fact, the corporation has distinctly stated that quite a large proportion of its money will be invested abroad, and it plans to reserve several hundred thousand dollars for this purpose.

Perhaps, as The Aeroplane is read by such a diversity of creatures, one had better explain that the corporation is unlikely to include among its foreign investments the financing of attempts to fly the Atlantic on light aeroplanes, or schemes to investigate the North Pole with kite-balloons towed by war-disposals aeroplanes. In fact, knowing Mr. Gardner rather well, one can safely say that the corporation will not interest itself in schemes but only in sound propositions which are already on a paying basis. It is much more likely to invest its money in a going concern than in one which has still to be started.

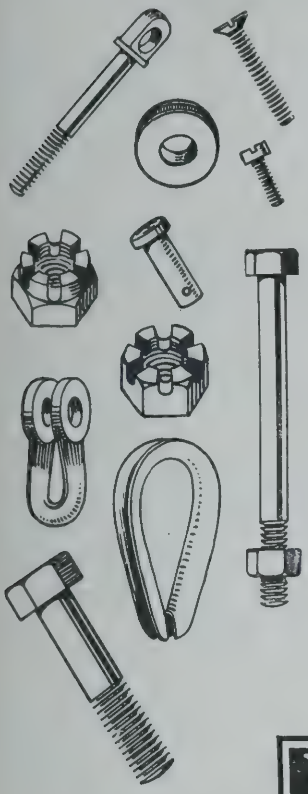
Naturally, all readers of The Aeroplane in every country to whom Mr. Gardner is known, and that means practically in every nation in Europe, will wish him and Aeronautical Industries Inc. every success.—C. G. G.

REMARKABLE MACHINERY.

The Book of Remarkable Machinery. By Ellison Hawks, Editor of the *Meccano Magazine.* 289 pp., 76 photographs and 76 drawings. George G. Harrap and Co. From The Aeroplane Book Department. 7s. 6d. net.

If anybody wants to give the time of his life to any mechanically-minded boy over the age of ten, one can strongly recommend the presentation to him of *The Book of Remarkable Machinery*, produced by Mr. Ellison Hawks, Editor of the *Meccano Magazine.* One believes that the Boy Scout movement and the Meccano movement between them have done more than all the educational and technical institutions combined to produce in the rising generation of Englishmen a spirit of law, order and decency. Nobody who has ever rejoiced in the putting together of a piece of machinery and seeing it work afterwards, or has fallen under what Kipling calls "the spell of ordered movement," can ever really turn Bolshie

According to political agitators we are a nation of Pacifists

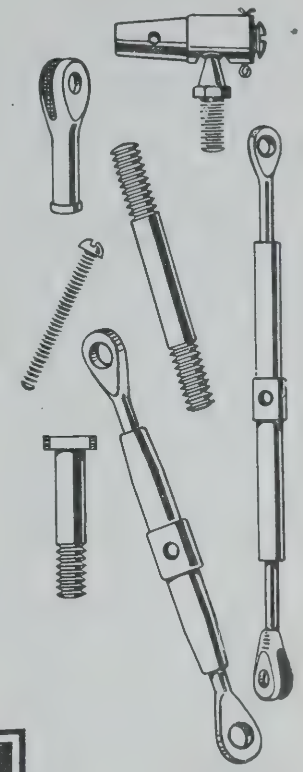


THREE NOTABLE FLIGHTS.

The fact that Rubery, Owen accessories were used on Sir Alan Cobham's machine in his flight to Australia and back; in Lieut. Webster's machine in which he won the Schneider Cup, and in Capt. Hinkler's Avro "Avian" machine in which he made his remarkable flight from England to Australia, is in itself sufficient evidence of the outstanding quality of these products.

Le fait que des accessoires Rubery, Owen ont été utilisés pour l'appareil de Sir Alan Cobham dans son vol à l'Australie et retour; pour l'hydravion du Lieut. Webster à bord duquel il gagna la Coupe Schneider, et pour l'avion Avro "Avian" due Cap. Hinkler avec lequel il exécuta son vol remarquable d'Angleterre en Australie, est en lui même une preuve suffisante de la qualité éminente de ces produits.

El hecho que los accesorios Rubery, Owen han sido utilizados para el aparato de Sir Alan Cobham en su vuelo a Australia y regreso; para el hidroavión del Teniente Webster a bordo del cual ganó la Copa Schneider, y para el avión "Avian" del Cap. Hinkler con el que ejecutó su vuelo notable de Inglaterra a Australia, es en sí mismo una prueba suficiente de la calidad sobresaliente de estos productos.



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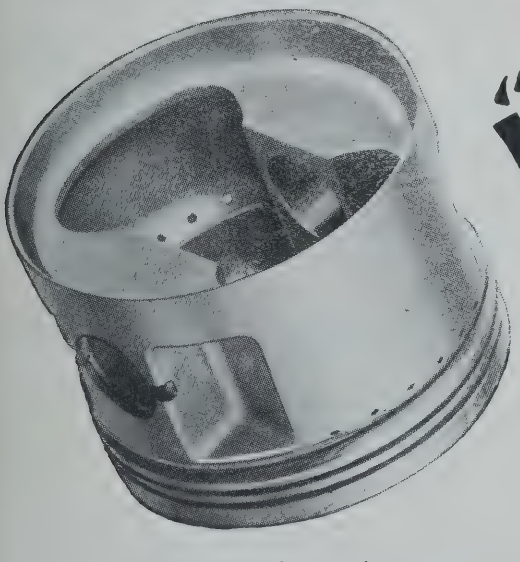

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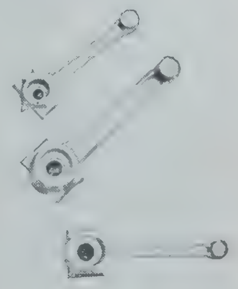

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and Communists. The best argument for those who may be induced to believe such things is to take them to the Tattoo at Aldershot or to the R.A.F. Display at Hendon and to let them see tens of thousands of people thrilled by the spectacle of war and ordered movement combined.

Therefore one regards Mr. Hawks' book as a most valuable contribution to the upholding of the British constitution. It will go far to drive home to the unconscious mind of youth the idea that a job of work is worth doing for its own sake, and that everything in this World depends on its working smoothly with some other piece of mechanism, human or otherwise.

Mr. Hawks starts with a chapter on steam-engines from the earliest type up to our latest express-engines. In his second chapter he deals with the machinery of shipping from the early steamships through the compound-engine to turbines and motor-boats, and even to such curiosities as the Flettner Rotor. The third chapter deals with internal-combustion engines, shows in simple diagrams and language how they work, illustrates the earliest of motor-cars and the most modern of aero-engines, and deals also with the Diesel type.

Thence he goes on to describe the machinery used in the production of iron and steel, and the machinery used in forging. He deals with testing, punching and rivetting machines, and machine tools of all kinds (and nothing is more fascinating than to see a multiple-tool turret-lathe at work). Then he deals with printing machinery, such as the Linotype, the Monotype and the Rotary printing machine.

Finally he deals with curious machinery, such as that for extruding brass rods, machines for wrapping toffee, cigarette-making machinery, cash registers, book-keeping machines, calculating machines, and so forth.

Somewhere about last Christmas *Punch* published a delightful picture of a woman in a shop asking for a mechanical toy suitable for the father of a boy of about ten. One feels sure that though *The Book of Remarkable Machinery* will be the treasured possession of boys of ten and over, father's thumbmarks will be at least as prevalent as those of Peter or Michael or Christopher Robin.—C. G. G.

THE PARIS AERO-SHOW.

Next week's issue of The Aeroplane will contain a fully illustrated report of the Paris Aero-Show. Readers are advised to order copies at once as the supply is strictly limited.

TRANS-ATLANTIC.—Mr. William Stultz, Miss Earhart, and Mr. Gordon, of the Fokker-Whirlwind "Friendship."

THE ITALIAN POLAR EXPEDITION.

Since last week nothing definite has been heard of the crew of the *Italia,* nor has anything been heard of Captain Amundsen and Commandant Guilbaud. A Finnish seaplane has been fitted with special skis for descent on soft snow in the hopes of reaching Lieut. Viglieri's party,—which was General Nobile's party till the leader was rescued. A Russian aviator who took off from the ice-breaker *Malygin* is also missing. Report says that the best chance of rescuing the main party lies with the Soviet ice-breaker *Krassin.*

MR. COURTNEY'S EFFORT.

Mr. Frank Courtney left Lisbon on June 28, on the first stage of his journey to America in a Dornier Wal and arrived at Horta in the Azores the same evening.

MOTHS FOR THE R.A.A.F.

A *Times* message from Canberra states that the Defence Department of the Commonwealth of Australia has accepted a contract with De Havilland Proprietary Ltd. to supply 20 De Havilland Moths to the Royal Australian Air Force at £551 10s. each.

AEROPLANE PHOTOGRAPHS.

Copies of The Aeroplane photographs, 8 in. by 6 in., may be obtained from the Editorial Office of The Aeroplane, 175, Piccadilly, W.1., at 2s. 6d. each, or 1s. 6d. each for three or more copies of one print, post free. Enlargements, at prices varying according to size, may also be had.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending July 1.

Flying Time 11 hr. 45 min. *Instruction* 5 hr. 40 min. *Soloists* 6 hr. 5 min. *Soloists.*—Miss Wilson, Messrs. O. J. Tapper, Art. Fowler, J. R. A. Stroyan, J. A. Brewster, E. R. Andrews, P. W. Hoare, C. E. Murrell, G. W. Hall, J. C. V. K. Watson, F. C. Fisher, R. Sanders Clark, A. J. Millar. *Instruction.*—Miss H. Cholmondeley, Miss V. M. Cholmondeley, Miss Wilson, Messrs. J. R. A. Stroyan, P. W. Hoare, R. L. Portway, E. H. Thierry, C. W. Bonniksen, G. E. Clair, A. J. Millar.

Owing to the R.A.F. Display all Club flying was suspended on Thursday, Friday, Saturday and Sunday.

Blackpool Meeting.—The Club will be represented in the various races at the Blackpool Meeting on July 6 and 7 by Major K. M. Beaumont, D.S.O., Messrs. G. H. Craig, J. J. Hofer, and Will Hay.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending July 1.

Flying Time 14 hr. 15 min. *Instruction* 6 hr. 30 min. *"A" Pilots* 5 hr. 10 min. *Passengers* 1 hr. 45 min. *Tests* 50 min. *Instruction.—With Mr. J. D. Parkinson*—Miss Slade, Miss Trevelyan, Messrs. Kendrick, Lawson, Twine, Dodds. *"A" Pilots.*—Mrs. Heslop, Messrs. C. Thompson, N. S. Todd, W. L. Runciman, D. Wilson, J. D. Irving, R. N. Thompson.

Little flying has been possible this week on acount of high winds which show no signs of abating, but we are hoping the weather will improve to enable our three Moths to proceed to Blackpool this week.

Mr. and Mrs. Butler on a Moth UX, Mr. Lines on an Avian WU, and Mr. Hope on a Moth called at the aerodrome during the week.

The Lancashire Aero Club.

[Sec.: Woodford Aerodrome, near Stockport.]

Report for week ending June 23.

Flying times not available at the moment of going to press.

This week's spot of fun has been with our only remaining Moth, old G-EBMQ, which was completely written off by Mr. R. R. Williams on Sunday. Fortunately the injuries were confined to a tree and the machine, Mr. Williams and his passenger escaping unhurt.

We have now no machines left and flying will be suspended for a week or ten days for repairs, renewals, replacements, etc. This will give the B.A.I.G. a breathing space.

The Yorkshire Aeroplane Club.

[Sec.: Lt.-Col. J. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending June 30.

Flying Time 26 hr. 10 min. *Instruction* 11 hr. 35 min. *Soloists* 13 hr. 25 min. *Passengers* 1 hr. 10 min. *Instruction.—With Mr. Beck*—Miss Ellison, Messrs. Ambler, Arundel, Bell, Blackburn, J. Brown, Dujardin, Lievans, Parks, Senior, Upton, Williamson, Wilson, Wilton. *With Mr. Stockbridge*—Messrs. Dujardin, Ostler, Parks. *Soloists.*—Messrs. Brown, Dick, Reynolds. *"A" Pilots.*—Messrs. Ambler, Clayton, A. Crowther, H. Crowther, Ellison, Humpheries, Lax, Norway, Thomson, Wood, Wilson. *Passengers.*—4.

On Sunday last Mr. and Mrs. Buscarlet paid us a visit on their way back to Sedbergh, also Mr. Jackaman. On Monday Mr. Beck did a tour of the East Riding coast, and on Thursday he flew to Oxford with Mr. Wilson to enable the latter to collect a Morris car from the Cowley Works, and thence to London for a Medical Board.

The chests of all our members at the Pageant filled with pride in that we could boast of "Batchy" as a member of the Yorkshire Club.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending July 1.

Flying Time 8 hr. 40 min. *Instruction.—With Mr. Young*—Messrs. C. Ransome, G. Wharton, A. G. Woods. *Soloists.*—Messrs. H. P. Clarke, S. Birt, E. Lambert, R. Harmer, W. P. Cubitt, N. Brett, R. Moore, R. Potter, F. Gough. *Passengers.*—7.

Weather in Norwich gets worse every week so it appears. Our flying time has been stolen this week, such as it is. The Hendon party waited patiently for it to break on Friday, but not until 21.00 hours was it good enough to attempt anything. However, we are pleased to think we still have a Moth.

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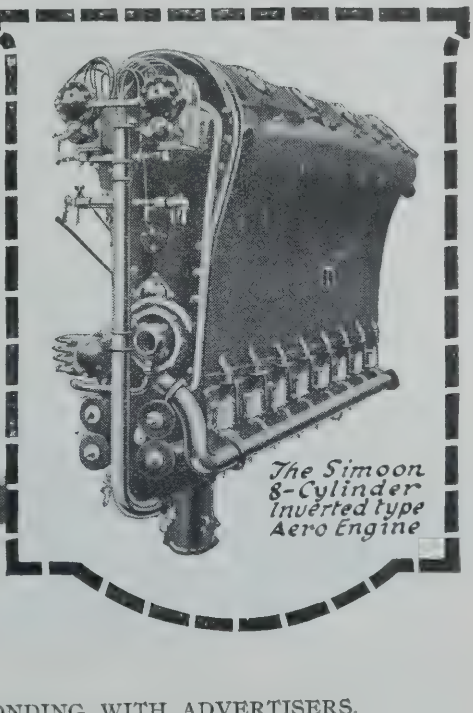

The Simoon 8-Cylinder Inverted type Aero Engine

The Beardmore "Inflexible," the largest all-metal Monoplane in the World

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadleigh, Suffolk.]

Report for week ending June 30

Flying Time 7 hr. 10 min. *Instruction* 2 hr. 45 min. *"A" and "B" Pilots* 15 min. *Soloists* (*under instruction*) 1 hr. 55 min. *Passengers* 2 hr. 5 min. *Tests* 10 min. *Passengers.—With Mr. Lowdell*—6. *With Mr. Prentice*—10. *Instruction.—With Mr. Lowdell*—Miss Rhodes, Messrs. Goodwin, G. Smith, T. and B. F. Marriage, and Wedd. *Soloists* (*under instruction*).—Miss Edwards, Messrs. Verney, G. Smith. *"A" Pilot.*—R. Brown.

High winds every day after Monday made instruction impossible. Our licensed Ground Engineer left us last Sunday and it was not until Saturday that we were able to find a substitute. There is a very marked shortage of qualified men at the moment, as was found by a very thorough canvass of the aircraft industry. Thus, even had the weather been suitable we should have been unable to fly until Saturday afternoon. This week we hope to be hard at work until Wednesday evening. After this the Club will be closed down from Thursday until Monday next as both machines will be away at the Blackpool Flying Pageant.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. F. G. Crawford, Filton Aerodrome, Bristol.]

Report for week ending June 30.

Flying Time 11 hr. 45 min. *Dual Instruction* 4 hr. 10 min. *Soloists* 6 hr. *Passengers* 20 min. *Cross-Country* (3 flights) 4 hr. 35 min. *Instruction.—With Mr. Bartlett*—Messrs. Amory, Allinson, Keeling, Peters, Singh, Pollock, T. H. Clarke. *Soloists.*—Messrs. Downes-Shaw, Hall, Jopp, and T. H. Clarke.

Mr. Downes-Shaw, who flew to Ramsgate on Friday of last week, returned on Sunday afternoon, having visited Lympne and Hamble on his way. Mr. Bartlett with Mr. R. Clarke flew to Stag Lane on Saturday to be present at Hendon.

The Cinque Ports Flying Club.

[Hon. Sec.: R. Dallas Brett, 114, High Street, Hythe, Kent.]

Report for week ending June 30.

Flying Time 10 hr. 15 min. *Tests* 20 min. *Passengers.—With Mr. Clarke*—12. *Dual Instruction.—With Mr. Clarke*—Mr. Sherwood Glynn, Mr. West, Douglas, Miss Allen, Miss Tagart. *Soloists.*—Mr. R. Dallas Brett, Mr. West, Mr. Douglas.

Consequent on our tip-up last week it was decided to give the engine a complete overhaul, and the machine was not ready for flying until June 27, so this report covers only four days' flying, which accounts for the low "hourage." On June 27, the members of the Ashford, Kent, Rotary Club visited the Aerodrome. Several of them took joy-rides in the Moth, and apparently greatly enjoyed themselves. We trust that they will inform their friends that aviating is not the hazardous pastime it is so often made out to be.

On Thursday, two members were ready for their "A" licence tests, but unfortunately high winds made this impracticable. We have now four members waiting to take their tests, and Commander S. E. Deacon, R.N. (Retd.), has been appointed Official Observer to the Club for the R.Ae.C. examination.

Mr. Edgson Wright has organised a novel entertainment at Ashford Golf Links. He will play golf from our Moth against two members of the Golf Club who will play normally on the ground. His "drop shot" will count as the approach shots allowed Col. Bogey for the hole, and he will be assisted by a partner on the ground armed with niblick and putter, who will hole out.

The Nottingham Aero Club.

[Hon. Sec.: Cecil R. Sands, A.C.A., Imperial Buildings, Victoria Street, Nottingham.]

Report for week ending June 29.

Flying Time 22 hr. 55 min. *Dual* 7 hr. 45 min. *Solo "A"* 7 hr. 10 min. *Solo* (*under instruction*) 5 hr. 55 min. *Passenger Flights* 50 min. *Tests* 1 hr. 15 min. *Dual with Mr. Martin.*—Miss Bostock, Messrs. Taylor, Chawla, F. Halton, Shipside, Thirlby, Hancock, Glenn, Lucas, and Bradley. *"A" Pilots.*—Messrs. Paul, Whitby, Blake, Hallam, Cox, Hamilton, and F. Grainger. *Soloists* (*under instruction*).—Messrs. Bradley, Hancock, Selvey, Pilgrim, and Glenn. *Passengers.—With Mr. Martin*—5. *With Mr. Hallam*—5. *With Mr. Blake*—2. *With Mr. Cox*—1. *With Mr. Hamilton*—3. *With Mr. Paul*—1. *With Mr. Whitby*—1.

Congratulations to Mr. Kenneth Hancock on his first solo effort this week.

The Toronto Flying Club.

The Toronto Flying Club, incorporated under the Government of Canada's scheme for Light Aeroplane Clubs, has been operating since April 28. The membership at present numbers about 170, about 60 of whom are ex-R.A.F. pilots.

The Club started operations with one Moth, a gift from Sir Charles Wakefield. A second Moth has been forwarded by the Government and a third is expected within the next few days.

The instructor is R. Carter Guest, who served in the R.A.F., and has since been flying in Canade. Since the beginnings of flying operations three Club members have gone "solo" and about 110 hours' flying instruction has been given.

THE FLYING SCHOOLS.

The Henderson Flying School Limited.

[Managing Director: Lt.-Col. G. L. P. Henderson, Brooklands Aerodrome, Byfleet.]

Report for week ending June 21.

Flying Time 39 hr. 25 min. *Instruction.—With Col. G. L. P. Henderson*—Messrs. Brooks, Bennett, Dr. Forsyth and Dr. Wall. *With Mr. H. D. Davis*—Messrs. Bellamy, Oliver, Norbury, Oldmeadow, Crabtree, Taylor, Quilter, Anderson, Miss MacDonald. *With Mr. W. F. Davenport*—Messrs. Somerset, Matos, Knox, Swan, Bennett, Faulkner.

Mr. Bellamy has completed all his tests for his "A" Licence Certificate and Mr. Brooks has been sent solo.

Report for week ending June 28.

Flying Time 37 hr. 50 min. *Dual.—With Lt.-Col. Henderson*—Messrs. Bennett, Brooks, Dr. Forsyth. *With Mr. H. D. Davis*—Miss Wellby, Messrs. Bellamy, Hill, Taylor, Oldmeadow, Groner, Bennett, Norbury, Matos, Major Parkin. *With Mr. W. F. Davenport*—Miss Wellby, Messrs. Matos, Saunders, Buckle, Swan. *Soloists.*—Messrs. Crabtree, Bellamy, Oliver, Anderson, Grierson, Dr. Wall, Brooks, Carlos.

Mr. Bellamy has passed for his R.Ae.C. Certificate, and Mr. Crabtree has completed the cross-country test for his "B" Licence.

Our two new lady pupils show great promise and seem to get hold of the elementary flying with great ease.

High winds have interfered considerably with the School work during the week.

430 passengers were carried on our machines during the week.

The De Havilland Flying School.

Report for week ending June 17.

Flying Time 112 hr. 35 min. *Instruction—Dual* 32 hr. 25 min.. *Soloists* 41 hr. 50 min. *Other Flying* 38 hr. 20 min.

Instruction was slightly interfered with owing to the Royal Air Force practising for the Pageant in the vicinity of Stag Lane.

One pupil obtained his "A" licence, and two others performed excellent first solos.

Several new pupils joined the school, including Lord Haddington and Capt. Sir Pyers Mostyn, Bart.

The Slotted Moth was demonstrated before representatives of the United States Navy and the Japanese Army, to their great satisfaction.

Twelve new Moths were tested for immediate delivery.

Report for week ending June 24.

Flying Time 87 hr. 10 min. *Instruction—Dual* 32 hr. 35 min. *Soloists* 13 hr. 15 min. *Other Flying* 41 hr. 30 min.

Flying was greatly curtailed owing to the R.A.F. practising for the Pageant at Hendon, and we are likely to be quiet until this is over, despite the fact that a great many new pupils have recently joined the school, which has grown tremendously lately, and adequately demonstrates the greatly increased confidence of the layman in civil aviation, and modern light aeroplanes.

Four excellent first solos were achieved including those by the Comtesse de Sibour, and Mr. J R. de Havilland, a cousin of the famous designer, and by no means a young man. One pupil qualified for his "A" licence.

Eleven new Moths were tested, including the first "Gipsy Moth," which has been demonstrated to the very great satisfaction of everyone concerned.

On Sunday morning, when most people were in slumberland, Miss Earhart flew a Moth at Stag Lane, and was full of praise for the machine, one of which she intends taking back to America with her. Miss Earhart later flew over to Northolt and back.

Report for week ending July 1.

Flying Time 63 hr. 30 min. *Instruction.—Dual*—27 hr. 45 min. *Solo*—10 hr. 15 min. *Other Flying*—25 hr. 30 min.

Our flying has been greatly curtailed this week owing to the Royal Air Force practising in the vicinity of Stag Lane for the Pageant.

Major de Bernardi, the famous Italian racing pilot, flew a "slotted Moth" and was delighted with the experience of such an "armchair flight."

Two officers of the Danish Air Force also visited us and flew Moths to their great satisfaction. Seven new Moths were tested including the second "Gypsy."

CANADIAN AIRCRAFT FOR CANADA.

A communication from Montreal states that Canadian Vickers Ltd. are going ahead rapidly and are making strenuous efforts to retain Canada's trade in aircraft. A policy of heavy expansion has been adopted to keep abreast of the increased aerial activities in the Dominion and to compete with machines imported from the United States.

Mr. R. P. Key has now taken the place of Mr. W. T. Reid as designer, Mr. Reid having started an aircraft firm of his own. One hopes soon to be able to publish in THE AEROPLANE particulars of Mr. Key's latest designs.

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floor space devoted entirely to aircraft is approximately 100,000 square feet.

War-time members of the R.A.F. will be interested to learn that Lt.-Col. R. H. Mulock, C.B.E., D.S.O., who won a high reputation as a war pilot and as a leader of men in the Dunkirk area, is now Operating Vice-President of Canadian Vickers Ltd.

Canadian material is used as largely as possible in the manufacture of the machines, particularly in the woodwork, and such material as cannot be made in Canada is bought in England. The tendency now is to use welded-steel fuselages instead of wood, because experience has shown that steel stands up to the extremes of Canadian temperatures better than does wood. Duralumin is used largely in floats, tanks and also in skis for operating on snow.

There is interest in noting that a feature of the Vickers plant is the licensed Customs air harbour for flying-boats, and that it is used so much as to need expansion.

SATISFACTIONS.

Newcastle-upon-Tyne Aero Club Ltd.—Satisfaction in full on July 31, 1927, of debenture dated Dec. 6, 1926, securing not more than £2,000. (Notice filed June 18, 1928.)

Beardmore Motors Ltd.—Satisfaction in full on Dec. 22, 1927, of mortgage or charge and debenture, both dated July 3, 1925, securing £275,000, and further sums up to an additional £10,000. (Notice filed June 19, 1928.)

PERSONAL NOTICES.

Deaths.

CALVEY.—On July 1, at Clifton, Bedfordshire, as the result of a flying accident, Flt. Lt. Harold Charles Calvey, No. 23 (Fighter) Squadron, R.A.F.

Flt. Lt. Calvey was born in 1897 and educated at the Royal Academy, Belfast, and Skerry's College. He joined the A.S.C. as a 2nd Lieutenant in October, 1914, and transferred to the R.F.C. as a flying officer in January, 1917. He served with distinction during the War 1914-18 and was placed on the Unemployed List in October, 1919. In January, 1920, he rejoined the R.A.F. with a short-service commission and was posted to No. 2 Flying Training School at Royston.

In December, 1920, he was posted to No. 60 Squadron, India, where he served until April, 1923. He was promoted to be Flight Lieutenant in January, 1925, and in July of that year was posted to No. 43 (Fighter) Squadron at Henlow. In January, 1926, he was posted to No. 23 Squadron at Kenley and in July, 1927, he was appointed to a permanent commission.

In November, 1926, Flt. Lt. Calvey succeeded in flying upside-down

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for 7 minutes 4 seconds on a Sopwith Snipe with a B.R.2 engine fitted with special tanks. At that time this was the longest time anyone had flown upside-down. During the last few years Flt. Lt. Calvey has tested and flown a number of new machines and was with justification considered one of the finest acrobatic pilots in the R.A.F. His skill as a pilot and his charm and modesty of manner had made him many friends. To these as well as to his wife and son the greatest sympathy will be felt in their great loss.—C. M. MCA.

HOLLIER.—On July 1, at Clifton, Bedfordshire, as the result of a flying accident, F-S. William Charles Hollier, R.A.F.

MAUND.—On June 26, near Amman, Palestine, as the result of a flying accident, John Henry Lorraine Maund, Plt. Off., No. 14 (Bombing) Sqdn., R.A.F.

Mr. Maund entered the R.A.F. with a S.S. comn. in January, 1927, and after a course of flying instruction at No. 4 F.T.S., Abu Sueir, Egypt, was posted to No. 14 (Bombing) Sqdn., in February, 1928.

MIDDLETON.—On June 26, near Amman, Palestine, as the result of a flying accident, AC.1. Jack James Heatherstone Middleton, R.A.F.

FORTHCOMING MARRIAGES.

MACNEECE FOSTER—BRUCE.—A marriage has been arranged, and will shortly take place, between Group Capt. William Foster MacNeece Foster, C.B.E., D.S.O., D.F.C., eldest son of Colonel and Mrs. MacNeece, of Castle Cary, Co. Donegal, and Jean, daughter of Mr. and Mrs. Ralph W. Bruce, of Langtons, South Weald, Essex.

NEWTON—HOGARTH.—The marriage has been arranged, and will shortly take place, between Flt. Lt. T. H. Newton, D.S.C., R.A.F., and Iris Hogarth, only daughter of Mrs. Everett Gaute, of Ingle Lodge, Addlestone.

POBJOY—HOLLOWAY.—A marriage has been arranged, and will take place on Aug. 7, at St. Mary's Church, Aylesbury, between Douglas R. Pobjoy, Capt. R.A.F. Education Service, R.A.F., and Elaine, second daughter of Mrs. Holloway and the late Mr. Henry Holloway, of Chichester House, Aylesbury, Bucks.

BIRTHS.

FARRINGTON.—On July 1, at 3, Wilbraham Place, Sloane Street, to Violet (*née* Neville), wife of Sq. Ldr. W. B. Farrington, D.S.O., R.A.F.—a son.

THOMAS.—On June 25, at The Manor House, Winsley, Bradford-on-Avon, the wife of R. M. Thomas, R.A.F.—a son (stillborn).

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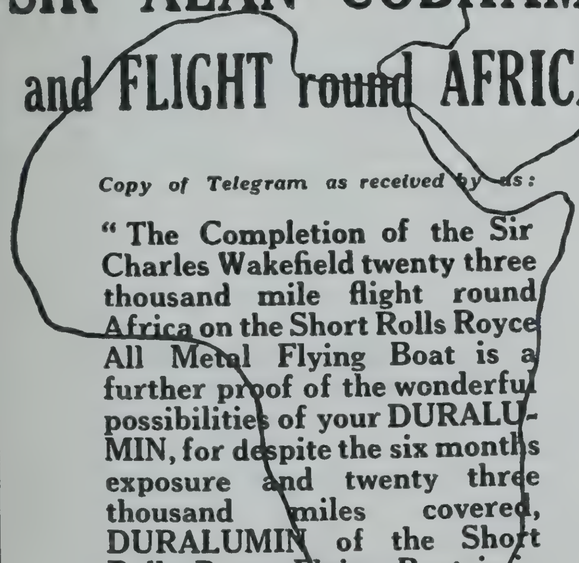

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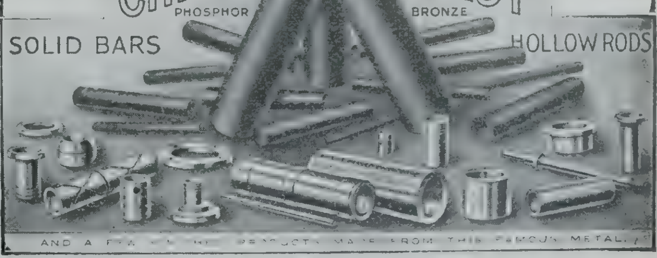

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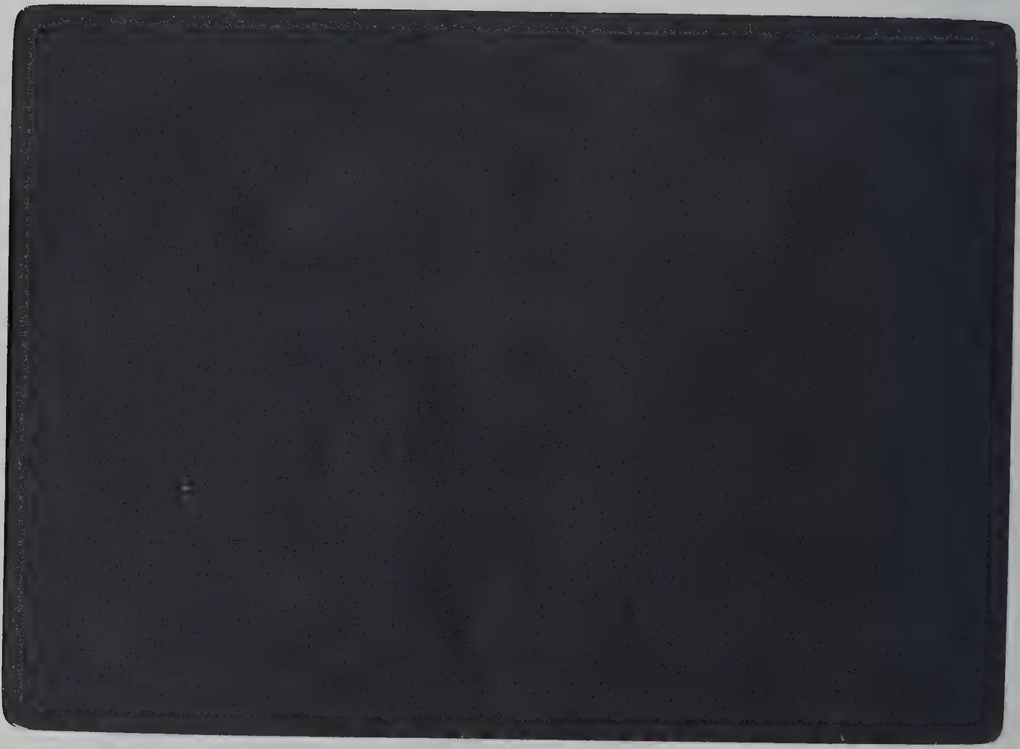

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IL est certain que le Grand Meeting de l'Aviation Royale Britannique, ayant lieu chaque année à Hendon, occupe haut la main le premier rang parmi les *events* annuels de l'aéronautique mondiale. Contrairement aux simples expositions d'appareils reposant à terre, il s'agit d'une démonstration pratique de l'avion militaire en plein travail, ce qui permet donc de mettre en lumière d'une façon bien plus convaincante la qualité et la performance des machines engagées. Maintenant que la Grande Bretagne occupe le premier rang au point de vue du développement de l'aéronautique, Hendon constitue désormais en quelque sort le véritable index du

THE Royal Air Force Display, which is held at Hendon, easily ranks foremost amongst the world's annual aeronautical events. As distinguished from exhibitions of machines on the ground, it is a display of service aircraft actually at work, and is therefore a far more convincing demonstration of the quality and performance of the aircraft engaged. With Britain leading in aeronautical development, Hendon has now become an index to the world's progress in aviation.

LAS Maniobras aeronáuticas del Real Servicio de Aviación Británico que se celebran en Hendon son sin la menor duda las más importantes entre los acontecimientos anuales de aviación celebrados en todas partes del mundo. Diferenciándose de las exposiciones de aparatos en tierra firme, esta exhibición consiste de aparatos oficiales prestando servicios prácticos, y por consiguiente ofrecen demostraciones mucho más convincentes de las cualidades y performance de los aparatos de aviación que toman parte en estas maniobras. Estando la Gran Bretaña a la cabeza de los desarrollos aeronáuticos, el acontecimiento de Hendon fija la

progrès que réalise l'aviation dans le monde entier.

Au cours de ces quelques dernières années, le rôle important joué à ce Meeting annuel par les Appareils Gloster s'est mis fort en évidence. En 1926, par exemple, sur un total d'environ 180 appareils participant au Meeting, on n'y avait compté pas moins de 71 Machines Gloster, soit 40 per cent., dont la majorité représentait des Monoplaces de Combat. Dans son commentaire relatif à cette démonstration, le journal, "The Aeroplane" se livrait à l'observation suivante, hautement significative: "Ce meeting aura démontré certaines choses qui en valaient la peine. Il a prouvé que nous possédons des Monoplaces de Combat de tout premier ordre, égalant certes ou dépassant même les meilleurs du monde."

Il n'est rien qui eût pu porter un témoignage plus éloquent à la qualité sans rivale caractérisant le dessin et la construction des Appareils Gloster.

Les pages suivantes servent à illustrer certains des appareils qui, aux mains habiles des pilotes britanniques, ont tant contribué à assurer le succès remarquable dont a été l'objet ces dernières années le Grand Meeting de l'Aviation Royale Britannique.

During the past few years the part played by Gloster machines in this Display has been a very conspicuous one. In 1926, for example, out of a total of about 180 machines participating, no less than 71, or 40 per cent., were Gloster machines. The majority of these machines were Single Seater Fighters. The "Aeroplane" commenting on the Display made the following significant remark: "That Parade did demonstrate a few things which were worth while. It showed that we have got first class Single Seater Fighters, equal to or surpassing the best in the world."

Nothing could bear stronger witness to the unrivalled quality of Gloster design and construction.

The following pages illustrate some of the machines which, in the skilful hands of British pilots, have contributed to make of the Royal Air Force Display of recent years such a remarkable success.

pauta de los progresos mundiales en materia de aviación.

Durante los últimos años el papel desempeñado en estas Maniobras por los aparatos Gloster se ha distinguido mucho de los demás. Por ejemplo, durante el año 1926, de un total de 180 aparatos tomando parte en tal acontecimiento, no menos de 71, o el 40 por ciento, eran aparatos Gloster. La mayoría de estos aparatos eran Aeroplanos Monoplaza de Combate. La revista "The Aeroplane," al comentar las maniobras realizadas, hizo la siguiente importante declaración: "Esa exhibición demostró ciertas cosas de no poca importancia. Demostró que la Gran Bretaña dispone de Aparatos Monoplaza de Combate de primer orden, iguales o superiores a cualquier otro modelo existente en el mundo."

No podía hacerse mejor comentario de las cualidades sin rival del diseño y construcción de los aparatos Gloster.

Las páginas siguientes ilustran algunas de las máquinas, las cuales, al cuidado de la pericia de los pilotos británicos, han contribuído a que las Maniobras Aeronáuticas del Real Servicio de Aviación Británico de los últimos años havan alcanzado un éxito tan extraordinario.

H.M. The King inspecting a Gloster "Gamecock" at the Royal Air Force Display, 1927.

S. M. le Roi d'Angleterre en train d'inspecter un Appareil Gloster "Gamecock," au cours du Grand Meeting de l'Aviation Royal Britannique, en 1927.

S. M. El Rey Jorge V examinando un aparato Gloster "Gamecock" en las maniobras aeronáuticas del Real Servicio de Aviatión Británico en 1927.

Gloster "Gamecocks" flying in formation at Hendon, 1927.
Appareils Gloster "Gamecock" volant en formation à Hendon, en 1927.
Aparatos Gloster "Gamecock" en vuelo formado en Hendon en 1927.

A l'occasion du Handicap Inter-Escadrille de l'Aviation Royale Britannique (Coupe Sassoon), 1927, les Appareils Gloster "Gamecock," partant *scratch*, se sont adjugé les TROIS PREMIÈRES places.

Pendant la course de 1928, c'est également un Appareil Gloster "Gamecock" qui a réalisé la vitesse la plus élevée.

In the Royal Air Force Inter-Squadron Handicap Race for the Sassoon Cup in 1927, Gloster "Gamecocks" starting from scratch obtained the 1st, 2nd and 3rd places.

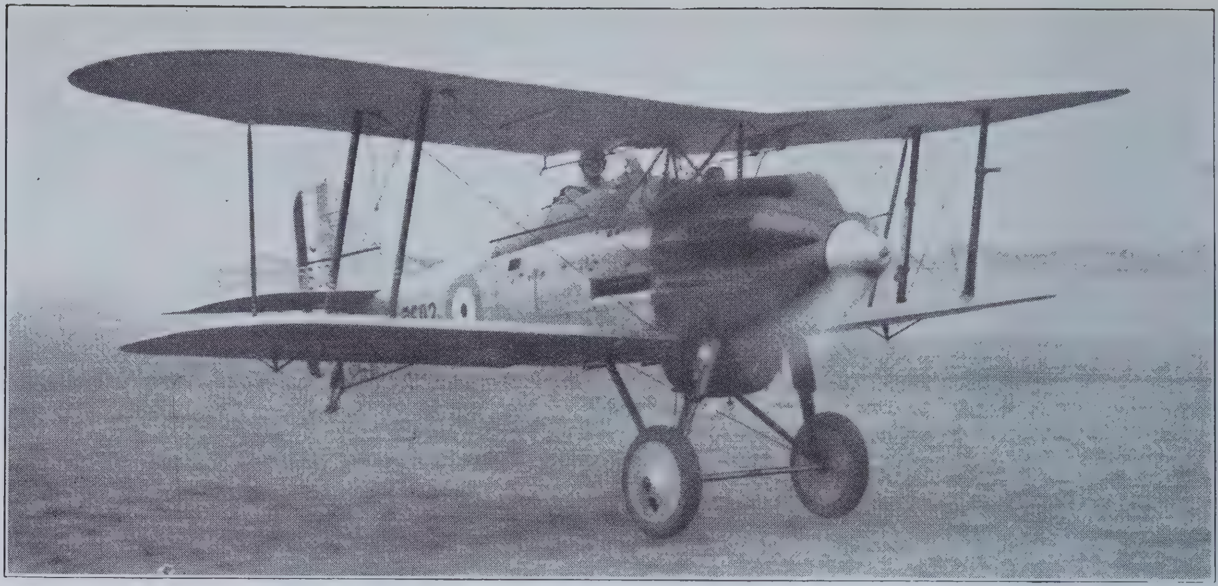
In the 1928 Race also the fastest speed was obtained by a Gloster "Gamecock" machine.

En la Carrera de penalidades en la que tomaron parte varios escuadrones del Real Servicio de Aviación Británico para la Copa Sassoon en 1927, los aparatos Gloster "Gamecock," los cuales fueron los últimos en salir, alcanzaron el primero, segundo y tercer puesto.

En el año 1928, la mayor velocidad alcanzada en esta carrera también fué alcanzada por un Aparato Gloster "Gamecock."

"Flight" Photo.

Gloster "Gamecocks" taking off during the Royal Air Force Display, 1927.
Appareils Gloster "Gamecock" en train de décoller, au Grand Meeting de l'Aviation Royale Britannique, en 1927.
Aparatos Gloster "Gamecock" despegándose durante las maniobras aeronáuticas del Real Servicio de Aviación Británico en 1927.



"Flight" Photo.

Gloster "Gorcock," Single-Seater Fighter with Napier Lion Engine.

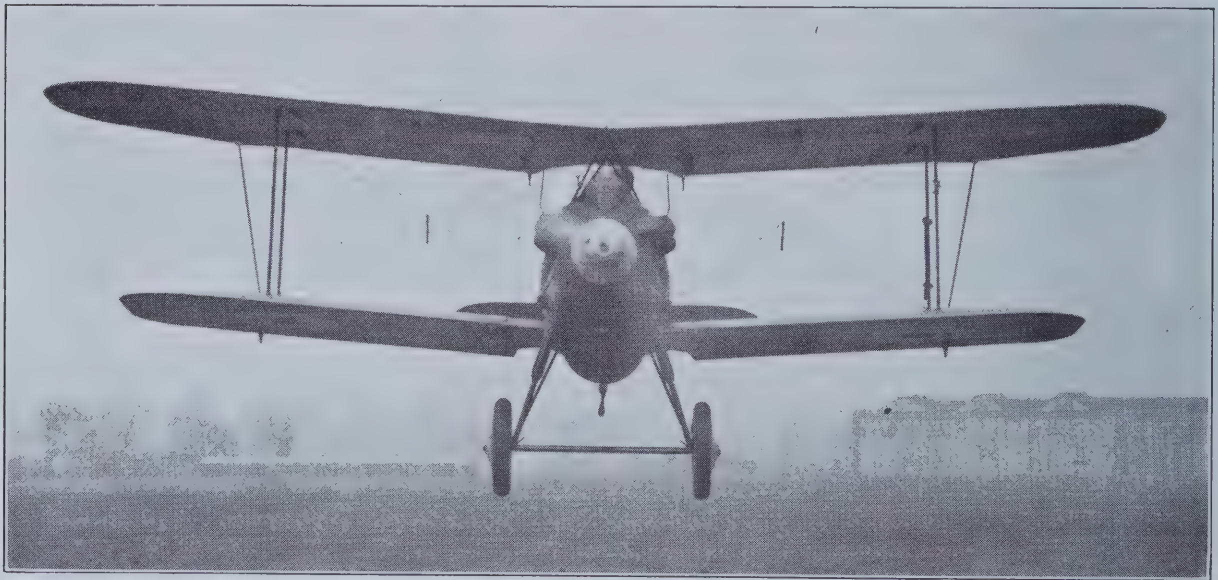
Appareil Monoplace de Combat Gloster "Gorcock," muni d'un moteur Napier Lion.

Aparato Gloster "Gorcock" de Combate, de tipo monoplaza, provisto de motor Napier Lion.

"On peut dire, toutefois, que le Gloster 'Gorcock' qui avait créé une impression extrêmement favorable au Grand Meeting de l'Aviation Royale Britannique, constitue un monoplace de combat dont la performance le met—dans sa catégorie—au-dessus de tout autre type étranger dont la description détaillée soit encore disponible."—"The Times Trade & Engineering Supplement," 8 Janvier 1927.

"It may be said, however, that the Gloster 'Gorcock' which created an extremely favourable impression at the Royal Air Force Display, is a single-seater fighter with a performance which in its class places it above any other foreign design of which particulars are available."—"The Times Trade and Engineering Supplement," Jan. 8, 1927.

"Sin embargo, puede mencionarse que el aparato Gloster 'Gorcock' que creó una impresión tan favorable en las Maniobras Aeronáuticas del Real Servicio de Aviación Británico constituye un aparato monoplaza de combate dotado de una performance que en su categoría supera cualquier otro diseño extranjero cuyos detalles sean conocidos."—"Suplemento Comercial y de Ingeniería de The Times," 8 de Enero de 1927.

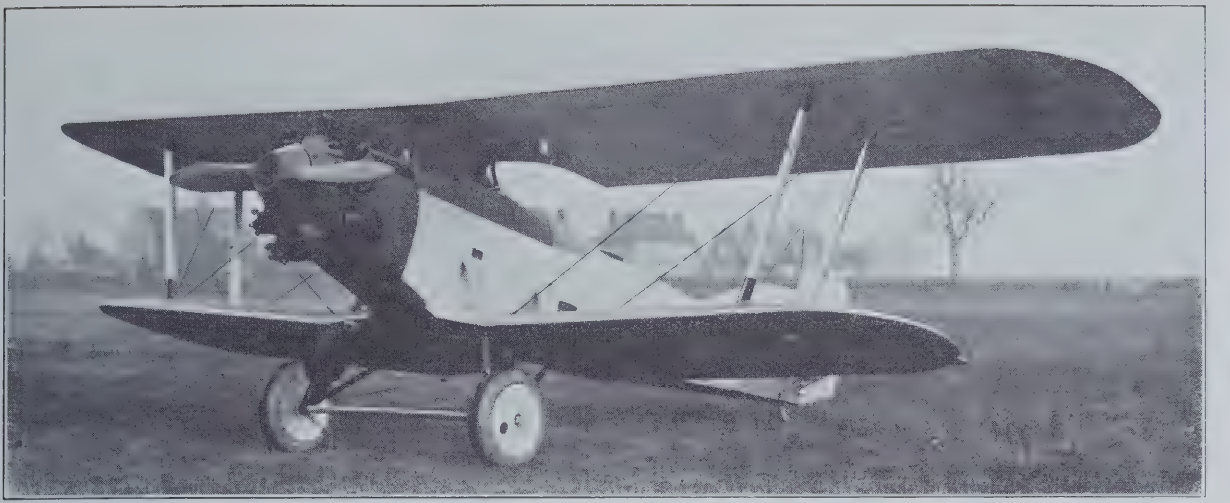


"Flight" Photo.

Gloster "Gorcock," Napier Lion Engine. A good impression of cleanness in design.

Appareil Gloster "Gorcock," moteur Napier Lion. A noter belle impression de netteté du dessin.

Aparato Gloster "Gorcock" con motor Napier Lion. Una buena impresión de la nitidez de su diseño.



"Flight" Photo.

Gloster "Goring I." High performance Reconnaissance or Bombing Landplane or Seaplane, 450 H.P. Jupiter Engine.

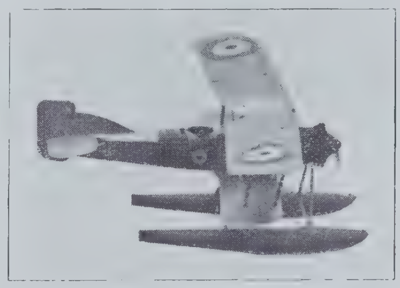
Appareil Gloster "Goring I" à grande performance, pour opérations de reconnaissance ou bien de bombardement terrestre, pouvant aussi servir comme hydravion, muni d'un moteur Jupiter de 450 CV.

Aeroplano o Hidroplano Gloster "Goring I" de Reconocimiento o Bombardeo, de alta performance, equipado con motor Jupiter de 450 H.P.

"This machine was first seen at the 1927 Royal Air Force Display when it paraded among the collection of new and experimental aircraft as a landplane. It then gave a favourable impression by virtue of its very clean lines, excellent proportions and its obviously good performance."—"Aeroplane," May 16, 1928.

"Flight" Photo.

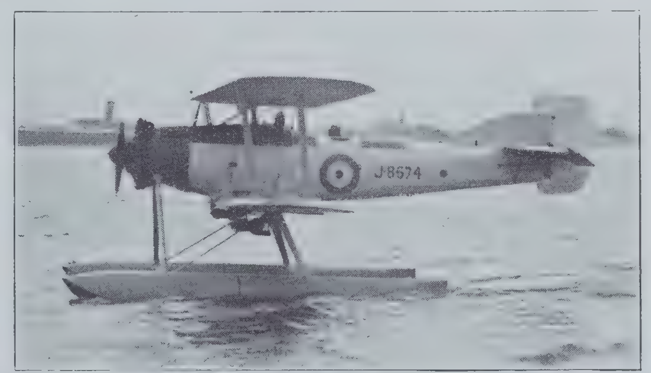
"The Gloster 'Goring' has more recently been fitted with a twin-float undercarriage and tested as a seaplane. The results have been particularly satisfactory so that there is now available to any nation requiring a high performance long-range two-seater, a machine of very considerable merits."—"Flight," May 24, 1928.



"Flight" Photo.

"C'est en 1927, au Grand Meeting de l'Aviation Royale Britannique, que cet appareil s'est vu pour la première fois. Il y avait participé en qualité d'avion terrestre, en même temps que toute une collection de machines nouvelles ou de type experimental. Il y a donné une impression très favorable, en raison de la netteté remarquable de ses lignes, de ses excellentes proportions et de sa belle performance dont la qualité a été vraiment manifeste."—"Aeroplane," 16 Mai 1928.

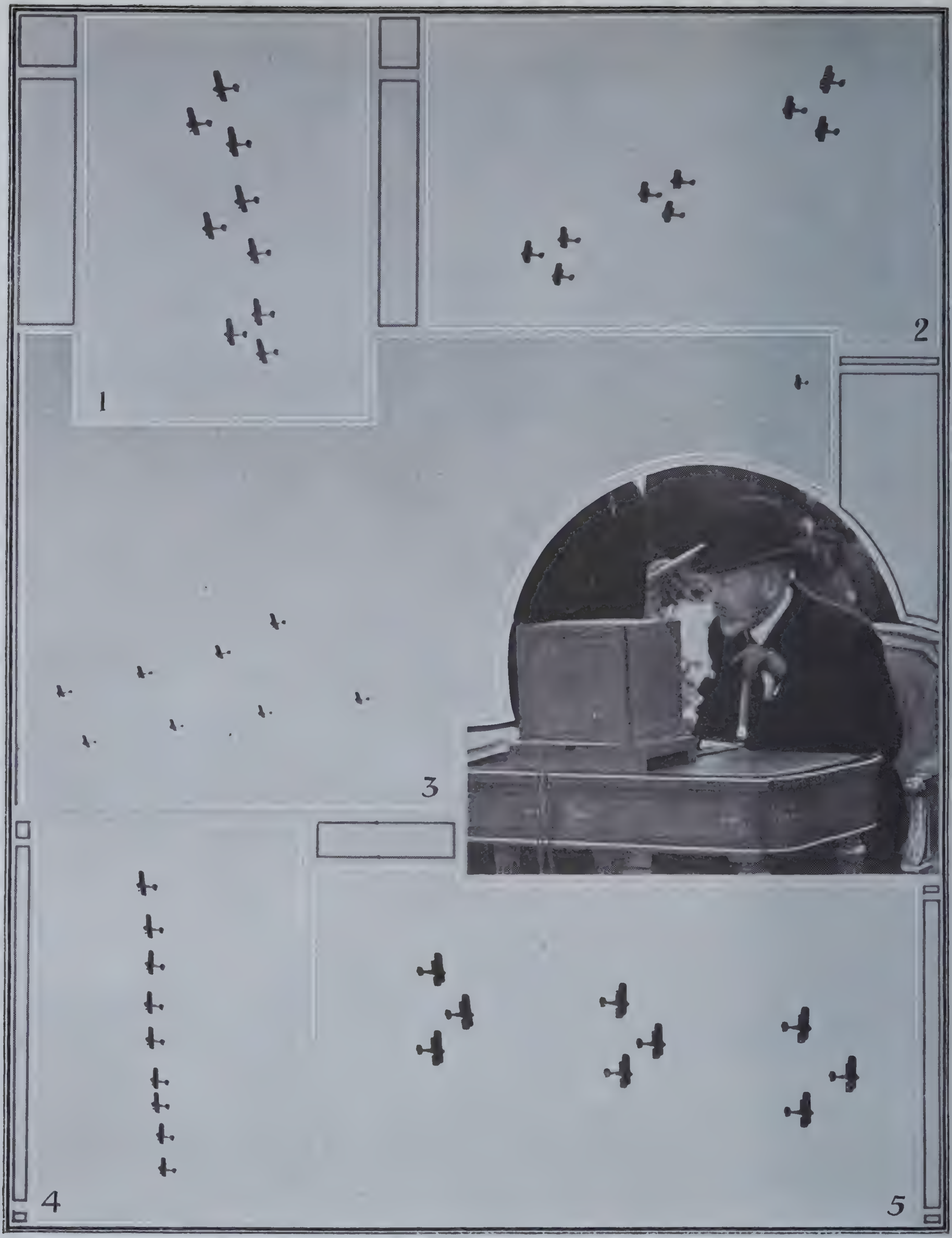
"Plus récemment, le Gloster "Goring" a été muni d'un train de flotteurs jumelés, afin que l'on puisse en faire l'essai comme hydravion. Les résultats ont été tout particulièrement satisfaisants, de sorte qu'à l'heure actuelle toutes les nations ayant l'emploi d'un biplace à haute performance, doté d'un grand rayon d'action, ont à leur disposition un appareil d'un mérite véritablement considérable."—"Flight" 24 Mai 1928.



"Flight" Photo.

"Este aparato fué visto por primera vez en las Maniobras Aeronáuticas del Real Servicio de Aviación Británico en 1927, en las que figuró entre los aparatos nuevos y experimentales como un aeroplano para prestar servicio sobre tierra. En aquella época proporcionó una impresión muy favorable por la nitidez de sus líneas, excelentes proporciones y performance indiscutiblemente satisfactoria."—Revista "Aeroplane," 16 de Mayo de 1928.

"Recientemente el aparato Gloster de modelo "Goring" ha sido equipado con un tren de amerrizaje de flotes gemelos y ha sido sometido a pruebas como un hidroplano para prestar servicio marino. Los resultados han sido muy satisfactorios, de forma que en la actualidad está al alcance de cualquier nación que necesite un aparato de dos plazas de alta performance y de gran radio de acción, y constituye un aparato de méritos verdaderamente notables."—Revista "Flight," 24 de Mayo de 1928.



"Flight" Photos.

Vième GRAND MEETING DE L'AVIATION ROYALE BRITANNIQUE, 1925. Le sixième anniversaire de ce Meeting a été vraiment mémorable, étant donné que ce fut S.M. le Roi d'Angleterre qui, de la loge royale même et par radiophonie, avait donné le commandement à l'Escadrille de Combat No.25 (Appareils Gloster "Grebe") placée sous la direction du Chef d'Escadrille A. H. Peck, durant les merveilleux exercices groupés auxquels s'étaient livrés ces appareils. A la gravure ci-dessus, on peut voir S.M. en train de parler devant le microphone. Voici la légende de celles des évolutions exécutées qui se trouvent représentées à cette page : (1) Vol en ligne de front. (2) Vol en ligne de relèvement par babord. (3) Double ligne de file. (4) Ligne de front. (5) Vol en ligne de file.

THE SIXTH R.A.F. DISPLAY, 1925: Its sixth birthday was a memorable one, for H.M. the King gave the word of command, from the Royal box, by means of wireless to No. 25 Fighter Squadron (Gloster "Grebes") under Squad.-Leader A.H.Peck, during their wonderful display of squadron drill. His Majesty is shown above speaking into the microphone. Some of the evolutions carried out, also shown, were (1) "Flight Mass Line Abreast." (2) "Flight Mass Echelon to Port." (3) "Double Line Ahead" (immediately preceding the King's order). (4) "Line Abreast." (5) "Flight Mass Line Ahead."

EL SEXTO AÑO de las MANIOBRAS AERONÁUTICAS del Real Servicio de Aviación Británico de 1925: El año sexto fué memorable, puesto que S.M. El Rey Jorge V dió la voz de mando, desde el palco Real, por medio de la radiotelefonía al Escuadrón de Combate No. 25 (Gloster "Grebes") bajo el mando del Squadron-Leader A. H. Peck, durante sus maravillosas maniobras de escuadrilla. Más arriba puede verse S.M. El Rey Jorge V hablando en el micrófono. Algunas de las evoluciones llevadas a cabo, que también se ilustran, fueron : (1) Orden de grupos, linea de frente. (2) Orden de grupos escalonada por babor. (3) Doble linea de fila (inmediamente antes de la órden de S M. El Rey). (4) Linea de frente. (5) En grupo linea de fila.

"Flight" Photo.

Gloster "Grebes" flying in formation at the Royal Air Force Display, 1927.

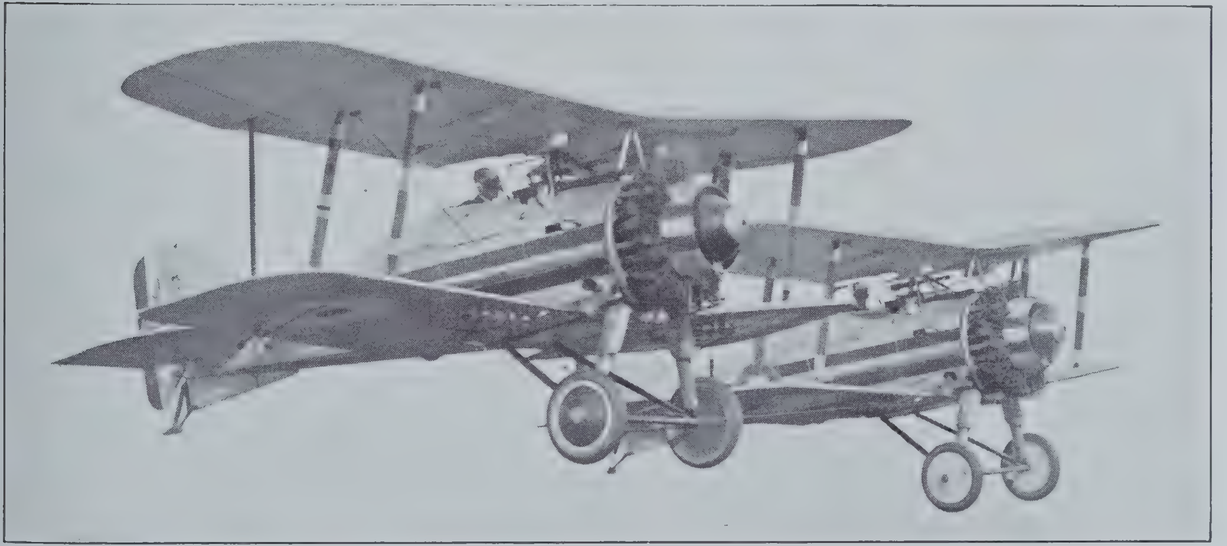
Appareils Gloster "Grebe" volant en formation au cours du Grand Meeting de l'Aviation Royale Britannique en 1927.

Aparatos Gloster "Grebe" en vuelo formado durante los maniobras aeronáuticas del Real Servicio de Aviatión Británico en 1927.

"Il est incontestable que cet appareil a fort belle allure, et—naturellement—tout l'exécution en est parfaitement comforme au degré de perfection étonnamment élevé pour lequel la Compagnie Gloster a toujours été si célèbre."—"The Aeroplane," 4 Juillet 1923.

"Certainly she looks a very nice job and naturally the workmanship is up to the astonishingly high standard for which the Gloster Company has always been famous."—"The Aeroplane," July 4, 1923.

"No cabe la menor duda de que la apariencia de este aparato es excelente y como es natural la mano de obra empleada está al nivel de las extraordinariamente altas normas por las que en todo tiempo ha sido famosa la Compañía Gloster." — Revista "The Aeroplane," 4 de Julio de 1923.



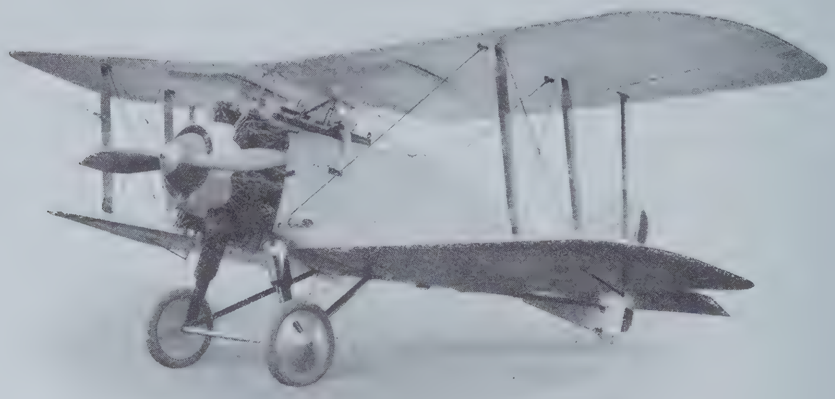
"Flight" Photo.

Gloster "Grebe II" Single-Seater Fighter, 395 H.P. Jaguar Engine.

Appareil Monoplace de Combat Gloster "Grebe II," moteur Jaguar de 395 CV.

Aparato Gloster "Grebe II" de Combate, monoplaza, equipado con motor Jaguar de 395 H.P.

GLOSTER "GREBE II."



TYPE	Single Seater High-Speed Fighting Scout.		
ENGINE	395 h.p. Siddeley Jaguar Aircooled Radial, Mk. IV with Supercharger.		
DIMENSIONS	Total Surface	254 sq. ft.	23·575m².
	Span	29' 0" Top, 25' 0" Bottom	8·839m.—7·620m.
	Chord	5' 3" ,, 5' 0" ,,	1·600m.—1·524m.
	Gap	4' 7"	1·396m.
	Wing Section	Gloster High Lift Biplane Construction.	
TANKAGE	Petrol: Two 26-gallon tanks mounted in Top Planes. Gravity feed.		
	Total capacity	52 gallons	236 litres
	Oil	5½ ,,	25 ,,
PERFORMANCE with Military Load	Maximum Speed at 5,000 ft. (1,525m.)	160 m.p.h.	254 km/h.
	Speed at 10,000 ft. (3,050m.)	165 m.p.h.	266 km/h.
	Landing Speed	53 m.p.h.	85 km/h.
	Climb	16 mins. to 20,000 ft.	(6,095m).
	Ceiling absolute	27,000 ft.	8,220m.
	Duration	2 hours at 15,000 ft.	(4,570m).
WEIGHTS	Total loaded weight of machine,	2,650 lbs.	1,205 kilos.
	Load per sq. ft.	10·4 lbs.	50·5 kilos/m².
	Load per H.P.	6·7 lbs.	3·03 kilos/C.V.
ARMAMENT	Two Vickers Guns firing through propeller. Space for 1,200 rounds of ammunition. Provision for bomb racks to carry 4—20 lb. (9 kg.) bombs.		
FACTOR OF SAFETY Air Ministry Aerobatic C. of A.	Wings: 7 on front truss, and 5 on rear. Body: 5 with landing loads. Landing gear and tail skid 4½.		
SPECIAL FEATURES	Best possible view in all directions. Very sensitive to control and manœuvrability. Machine can be flown with hands off the controls.		

THE GLOSTER AIRCRAFT Co., Ltd.,
SUNNINGEND WORKS, CHELTENHAM.
London Office: 5, GRAFTON STREET, BOND STREET, W.1

No. 2.

THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

UNIVERSITY OF ILLINOIS

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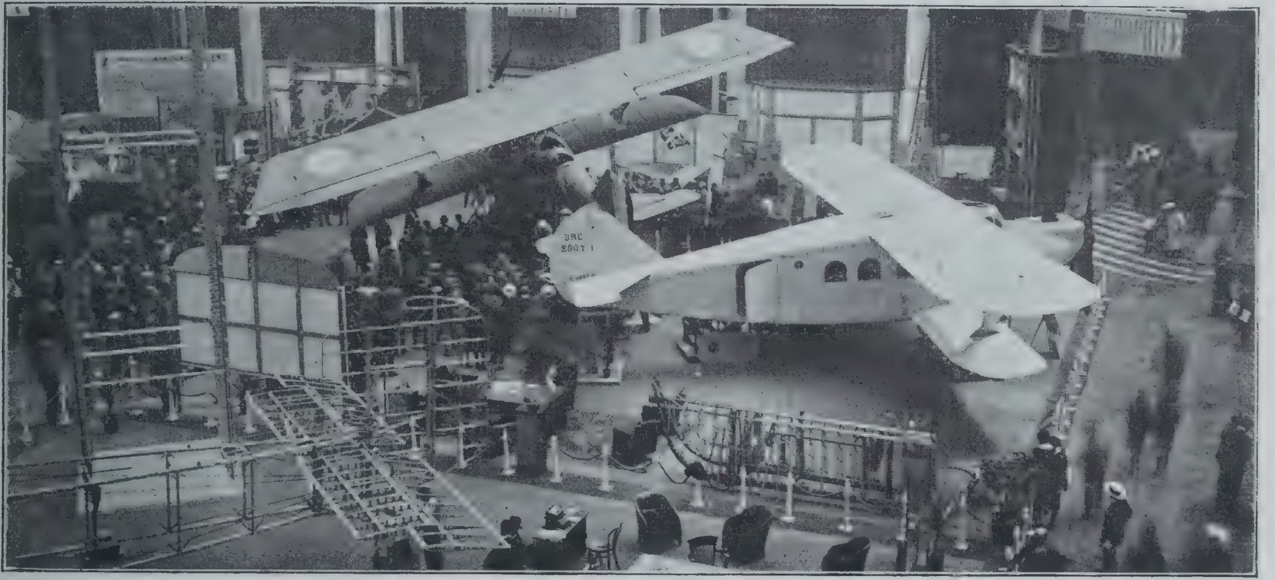
"SEE HOW THE WORLD ITS VETERANS REWARDS!"

(Pope.)



A MAKER OF HISTORY.—A general view of the East End of the Grand Palais, showing Bréguet Corner. M. Bréguet is one of the earliest pioneers of French Aviation and is now one of the leading Aeronautical Industrials. The machine apparently doing a spiral clamber is the Bréguet 19 on which Costes and Le Brix did their World Tour of the Americas, after it had already beaten the Distance Record four or five times.

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This telegram has been received from Sir Alan Cobham, K.B.E, upon the conclusion of his African flight of 23,000 miles.

B or C

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SEAPLANES. ROCHESTER
PLEASE ACCEPT CONGRATULATIONS ON MARVELLOUS PERFORMANCE OF THE SHORT SINGAPORE ALL METAL FLYING BOAT ON THE COMPLETION OF THE SIR CHARLES WAKEFIELD FLIGHT OF SURVEY ROUND AFRICA OF TWENTY THREE THOUSAND MILES WHEN WE MADE EIGHTY LANDINGS AND EIGHTY TAKE OFFS WITHOUT DIFFICULTY WITH FULL LOAD UNDER TRYING CONDITIONS AND TROPICS SINGAPORE RETURNS HOME IN SAME PERFECT CONDITION AS AIRWORTHY AS WHEN SHE STARTED THE ROUND AFRICA FLIGHT SIX MONTHS AGO
ALAN COBHAM

SHORT BROS. (ROCHESTER & BEDFORD) LIMITED, ROCHESTER, KENT

JULY 11, 1928.

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ON THE PARIS AERO SHOW, AND THINGS.

Never did the British Aircraft Industry miss so good a hance of demonstrating to the World its superiority over ll its competitors as it did by not exhibiting at the Paris ero Show. The real *clou* of the Show, the thing which verybody who was anybody in Aviation went to see, was he Bristol single-seat fighter, which bears a strong family esemblance to the highly-confidential Bristol Bulldog. And hough our old friends the Bristol Company, from their earliest ays as the British and Colonial Aeroplane Co. Ltd., have lways been noted for the excellence of their workmanship, nd though everyone will freely admit that Bristol workmanship is still unsurpassed by anybody else, there are other rms in the British Aircraft Industry whose workmanship nd finish would have stood out above the general level f the machines at the Grand Palais as much as the Bristol id.

Every proverb has a counter-proverb which cancels it ut. So in this instance one could either say that "every nan knows his own business best" or that "lookers-on see nost of the game." Certainly a large number of the lookers-n at the Paris Show who know the high level of workmanhip in British aircraft lamented that there were not at least alf-a-dozen British firms represented at the Show. If there ad been as many we should have convinced the Military, Naval and Civil Air Authorities of all nations of our unoubted superiority.

Quite apart from the question of material and workmanship nd finish in big war machines, it was truly lamentable that one of our light aeroplanes was shown. There were a few rench machines with engines of approximately 120 horse ower, there was a tiny Caudron with a 40 horse-power Salmon, and there was a Klemm-Daimler with a little 2-cylinder op-bottle Mercédés engine. But there was nothing at all in the Show to compare with our Moths and Avians and Widgeons and Bluebirds.

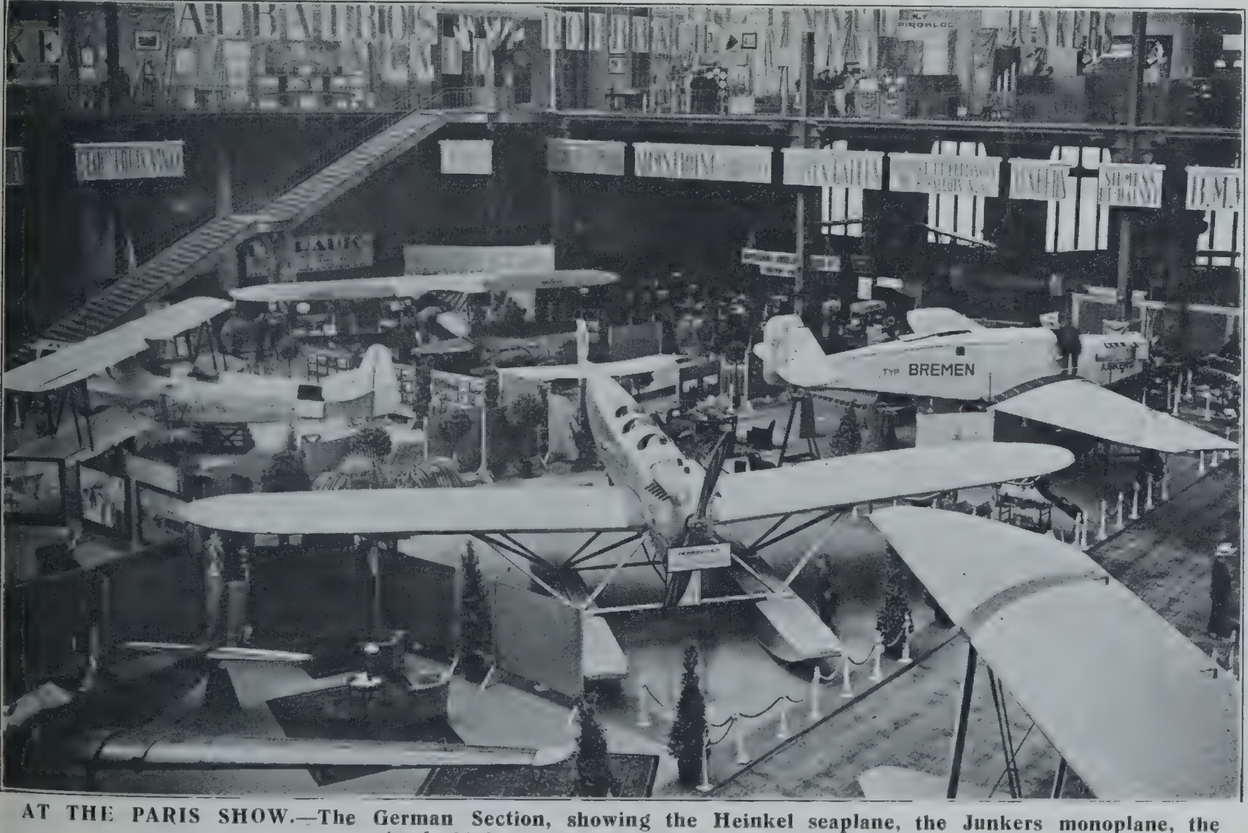
This is not to say that the workmanship in the French, German, Italian and Czechslovak machines which were on show was by any means bad. On the whole it was very good indeed. But we could have beaten the best by quite a large margin.

POPULAR DISINTEREST.

Considered as a money-making proposition for the promoters, one fears that the Show will not be much of a success. When one arrived about midday on Wednesday it reminded one very much of our own Aero Shows at Olympia, when we used to say bitterly that one could fire a machine-gun up and down the gangways without hurting anybody. At first one put the absence of people down to the sacredness of the French hour of the *déjeuner,* when the whole population fades away into cafés and things. But even French *déjeuners* do not last till four o'clock in the afternoon. And even at that hour one could circulate freely all over the Show. There was no sign of a crush anywhere.

One heard that there was a fairish gate on the opening day and on the Sunday but evidently the French people in these days have tired of being interested in war machines and have not yet awakened to the fascination of civil aircraft, either of the big transport kind or of the light aeroplane class.

On the other hand the people from whom business might be expected were there in quantities. All European nations and a good many others have sent at one time or another the chief men of their aeronautical departments. Personally one was only able to be there for a day and a half. But during that time one came across important people from nearly all countries. And besides them, naturally, a great



AT THE PARIS SHOW.—The German Section, showing the Heinkel seaplane, the Junkers monoplane, the Arado biplane, and the Albatros Ass.

many people came before and after those two days. Consequently one may fairly assume that from the point of view of the manufacturers who wanted to show war machines to possible buyers the Show has fulfilled its purpose very well.

But, anyhow, the French Trade could not show its very latest products, for the new type war-machines in France are even more secret than are our own.

Points of Interest.

Apart from the Bristol, and its neighbouring stand of Jupiter engines, which themselves were priceless examples of perfect finish, the interest of the technical people seemed to concentrate on two or three interesting machines.

One of these was certainly the big Amiot fighting bomber. It is not altogether a new machine, but the ingenuity and at the same time the simplicity of the duralumin construction drew attention.

The Potez 32, a passenger-cabin job, was also interesting. A Marcel Besson seaplane built by the Ateliers des Mureaux was regarded with favour.

Another interesting thing was the Amiot fighter, a monoplane with its petrol tank sticking out on each side underneath the fuselage in the shape of a short stubby wing. This idea seems to have a good deal to recommend it.

The Bernard people, who must have suffered severely by the death of M. Jean Hubert, have nevertheless produced a very nice single-seat fighter, which people seemed to like.

The German exhibit made quite a good show, though there was nothing particularly new in it. The Junkers exhibit was a monoplane similar to the Bremen which flew from Ireland to Labrador. Herr Heinkel showed a good sound seaplane, a twin of that which won the Baltic Seaplane Trials two years ago. And the Albatros Company showed a very plain but useful training machine.

The Dornier Wals and Super-Wals and Extra-Super-Wals were represented by models only. And the famous Rohrbach construction was represented by the middle section of a wing. Still, it was something to have such a good show of German stuff in Paris.

The Italian exhibit was artistic like everything Italian. And on the whole the level of the finish was better than the French machines. Interest chiefly centred on the big Savoia 55, a twin-hulled flying-boat similar to those on which the Marchese de Pinedo flew round the South Atlantic and over most of the three Americas. A good deal of interest also was taken in the little Macchi monoplane on which Major de Bernardi broke the World's Speed Record.

The Czechoslovak machines were plain but useful.

Undoubtedly from everybody's point of view the most interesting individual machine in the Show was the old Breguet XIX on which Capt. Costes and Lieut. le Brix made their wonderful flight which circled the World,—barring shipping the machine across the Pacific.

A war machine of some interest is the Bleriot 127, with two Jupiter engines, which apparently belongs to a new class called a Multiplace Fighter. It is in fact merely a very large monoplane with two engine nacelles, or gondolas, slung under the plane on each side with a gunner's cockpit in the tail of each and sundry other gun positions sprinkled about the machine. It strikes one as being just about the most useless type of war machine which anyone could invent. Like big night bombers it is merely a matter of putting a whole lot of valuable men into one machine which can be brought down by a lucky shot from an Archie gun or by a bullet.

Engines.

Purely on the engine side, the Jupiter makes very much the biggest splash in the Show. What with the British-built Jupiters and Titans themselves, and the Jupiters and Titans built under licence by the Gnôme-Le Rhône Company, and those built elsewhere in the World either under direct licence to the Bristol Company or under indirect licence through the Gnôme-Le Rhône Company, the Jupiter is being made in more parts of the World than any aero-engine has ever been.

Nevertheless, our other British radial engine firm, the Armstrong-Siddeley, makes quite a brave show with the Jaguar, Lynx, Mongoose and Genet.

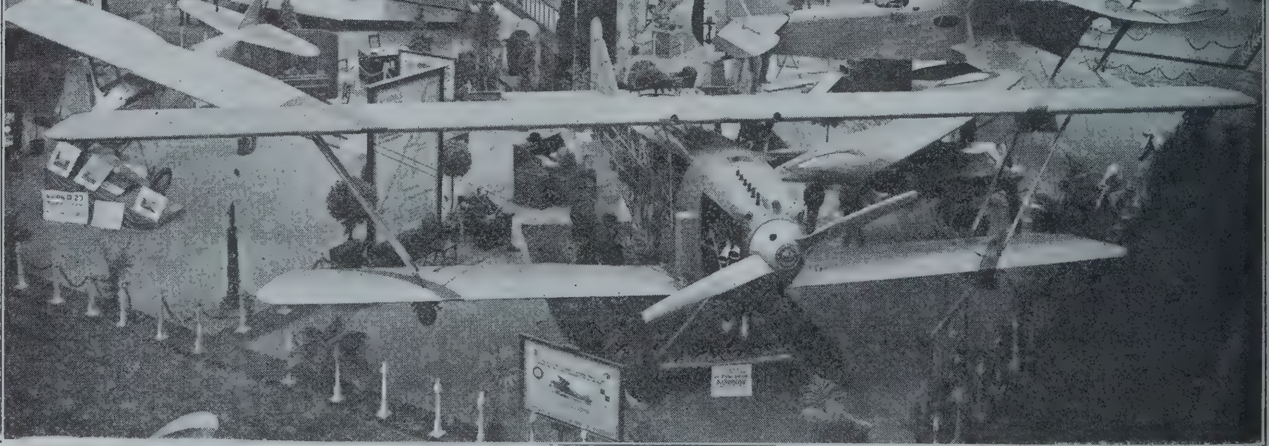
There is interest in noting that the French are evidently going out after the type of the Wright Whirlwind. The Salmson people have a 230 h.p. 9-cylinder engine which comes very near it, the Renault people have a 250 h.p. radial which might be classed as an imitation of the Whirlwind, and the Hispano-Suiza Company are definitely manufacturing the Whirlwind under licence.

There was an interesting 12-cylinder Vee-type air-cooled engine of some 500 h.p. on the Isotta-Fraschini stand. Like all Italian stuff it is beautifully made.

The seven-cylinder Armstrong-Siddeley Lynx and the five-cylinder Bristol Titan of 225 h.p. come into the same power class, but it remains to be seen whether pilots in general, and designers of aeroplanes in particular, find any disadvantage in having seven and five cylinders respectively in the British engines against nine cylinders for the same power in the French and American engines. Certainly that amazing flight by Lieut. Koppen on the Fokker FVII-3m with three Lynx engines from Amsterdam to Batavia and back would seem to show that seven cylinders can do the job all right.

One engine in the Show which created an enormous amount of interest, more especially among the really practical technical people who know their jobs, was the Fairchild-Caminez engine, which, with 4 cylinders, drives a cam fixed on the airscrew shaft and so gives the same number of explosions per revolution of the airscrew as if it were an 8-cylinder job. A sectional example of the engine was shown so that people could see the curious working of the pistons with their cam.

Although it was stowed away right up in the gallery there was always a small crowd climbing over one another to see how it worked. This engine is now represented in Europe by Capt. Cyril Turner, formerly of 23 Squadron R.F.C., later



AT THE PARIS SHOW.—The big Amiot day-bomber with the Amiot fighter monoplane just behind it. On the left is the Swiss-built Dewoitine, designed without official restrictions. The Levasseur torpedo-dropper is on the right, behind the Amiots.

of the Communication Squadron at Hendon and still later a sky-writing pilot in the United States. Capt. Turner also represents the Fairchild monoplane, a machine which has done good service in photographic and survey work in Canada as well as all over the States.

The novelty and yet the proven efficiency of the Caminez engine and the reputation of the Fairchild monoplane ought to result in quite an amount of licences for construction in Europe. Judging by the busyness of Capt. Turner and his able helper Mr. Stevens during the Show, quite good business ought to result.

All these aeroplanes are described separately, severally and in detail by W. H. Sayers, and many of them are illustrated by Mr. Leonard Bridgman, hereafter in this issue. Therefore one need not say any more about them.

The General Effect.

Of the Show as a whole one is inclined to agree with a famous American aviator who when asked his opinion about it simply replied "Well, I'm not handing anything to it."

Personally one cannot find any particular reason for lavishing bouquets on it. At the same time it was a good honest effort to put up an interesting Aëro Show.

One has seen worse Shows. But one has also seen many better. And it had at any rate the justification that though none of the machines displayed any startling novelty all of them showed that the people who had built them know how to make flying-machines.

The French Aircraft Industry as a whole seems to be doing fairly well out of orders for assorted Governments as well as its own. It may not be so rich and prosperous as the British Industry, supported as it is by a fatherly Air Ministry, let alone the business which is really being got abroad in military and civil machines by the more enterprising of British manufacturers, but the chiefs of the French firms all seem to be quite well fed, and most of them seem to drive large automobiles, very much like their British opposite-numbers. So evidently things are not going too badly with them.

The French Industry has, of course, the additional advantage of being able more or less to command orders from certain Central European nations to whom money has been lent by France on the condition that it is spent on buying armament from France. That is to say, the money of the French taxpayer, not to mention certain money which France owes to certain Allies in the late inter-tribal brawl, is really handed over to French armament manufacturers, for goods which are supplied to Central European nations,—less of course a certain rake-off to certain officials of certain nations. We of course would be at a disadvantage in deals of this kind. Still, we do business somehow.

As for the appearance of the Show, it was quite pretty, but the decorations and general lay-out of the signs were not so rich nor as impressive as they have been at previous Shows. This year all the signs were either made of aluminium or painted like aluminium, with blue lettering on them. The general effect was rather as if the French Aircraft Industry, which is notoriously addicted to the use of aluminium in its aircraft, had turned over all its scrap sheet-aluminium to the Show to be used up for signs,—more especially as each letter was painted on a separate little plate instead of having one large placard with the name on it.

The Official Dinner.

On Thursday, July 5, the *Chambre Syndicale* which runs the Show had the usual Show Banquet at the Hotel Continental, and through the kindly intervention of an Anglo-American friend one had an invitation to it. This is the first time one has had the opportunity of attending such a function, for hitherto one has rushed over to Paris the day before the Show opened so as to bring back the report in time for the next week's issue of The Aeroplane, and the Banquet is always held the following week. This year the Banquet was particularly interesting on account of the number of different nationalities represented.

The Chair was taken by M. Bokanowski, the Minister of Commerce and Industries in the French Cabinet, an amiable and debonnair man of the World, whose forebears were obviously extracted from Poland not very long ago. He fulfilled his proper functions with all the graces and eloquence of our Lord Thomson.

M. Lioré, of the Lioré et Olivier firm, the Chairman of the Society, delivered a long and interesting speech devoted very much more to International Aviation than to the French Industry. He was followed by M. André Granet, the Secretary of the Show, who also dwelt on the international aspect of the Show.

After him came Colonel Piccio, one of Italy's greatest war pilots and now once more the Italian Air Attaché in Paris. He spoke with real eloquence on International Aviation.

Then came Dr. Huth, of the scientific side of German aeronautical officialdom, who made another very good and short international speech in German and read it over afterwards in French.

After him came an eloquent member of the Czechoslovak detachment, more international than ever.

Nobody spoke for England because so far as one could see nobody was there from England with the exception of our Air Attaché and oneself. And as neither of us had anything to do with exhibiting anything at the Show naturally we had no call to speak. Colonel Piccio of course was concerned with the whole Italian Government exhibit. But we had no exhibit, because, at any rate up till the time when one left on Thursday night, the much-promised and instantly expected Supermarine S.5 lent by the British Government to the French Government for the official exhibit had not appeared.

Later explanation of its absence is that the Air Ministry did not offer to lend the machine to the French Government, they offered to lend it to the Supermarine Company, who offered to lend it to the French Government. And when it came to a show-down it appeared that the Supermarine Com-

AT THE PARIS SHOW.—A C.A.M.S. Flying-boat.

pany were expected to pay for the transport without the satisfaction of having a stand of their own on which to show the machine. Of a truth there are some things they do better in France.

That day and a half at the Paris Aero Show was quite interesting because such a lot of things quite unconnected with the Show itself happened just around that time. And so one had an uncommon chance of getting a thoroughly International view-point on them all.

A Tragedy of the Opening.

First of all one heard the true story of the death of the lamented French aerobat, M. Fronval, who was killed at Villacoublay the day before the Show,—which event cast a gloom over the opening day.

Apparently M. Fronval was delivering machines from the Morane Aerodrome on one side of the road to the French Military Aerodrome on the other side. The wind was blowing across the road from the Military Aerodrome to the Morane aerodrome. Consequently all he had to do was to get into a machine, run straight into the wind, hop over the trees alongside the road and sit down in the Military aerodrome on the other side. According to the laws of all aerodromes he ought to have flown a circuit of the Villacoublay aerodrome every time, before alighting. Unfortunately he omitted to do so.

Just as he was landing a machine, and was actually on the ground, a comparative novice, who had only had his Certificate for about a week, was getting off the Villacoublay Aerodrome. And unfortunately in landing M. Fronval came right across his path, with the result that the novice hit Fronval's machine just as he was leaving the ground.

The machines caught fire, the novice and his passenger scrambled out before anything much had happened and the unfortunate Fronval was caught in the middle of the wreckage of the two machines. So do the most able pilots come to grief through not sticking to the simplest of rules and regulations.

The World-Racers.

The next piece of excitement was the arrival at Le Bourget of Mr. Mears and Mr. Collyer, an old air mail pilot, who are trying to get round the World quicker than anyone else, flying where flying pays and doing the rest by rail and boat. Mr. Mears declared to a mutual friend at Le Bourget that he was going to beat his predecessor's record firstly because he, Mears, was 100% Irish and secondly because he was a Roman Catholic and the other man wasn't,—which does not seem a particularly adequate reason.

Anyhow the two had shipped a perfectly good Fairchild monoplane onto the *Olympic,* had unshipped it at Cherbourg that morning, and had arrived at Le Bourget in the afternoon. Thence they raced down to Paris in cars to pay their respects to the President or the Prime Minister or somebody, and to U.S. Ambassador Herrick, and then they dashed back to Le Bourget and flew off to Cologne hoping to get to Berlin over the lighted night-flying air-line that evening.

The Affaire Lowenstein.

Then came the news of the decease of Mr. Lowenstein. The curious thing about this was that nobody took it seriously. One has never met Mr. Lowenstein, but one hears from those who have done so that he, besides being an extraordinarily able financier, was a reckless sportsman. People who have done business with him say that he was a straightforward business man whose word was as good as his writing. But somehow none of the aviation people in any country took him seriously, any more than they took Mr. Levine seriously.

The humour of aviators, living constantly on the brink of breaking their necks, is always apt to be a little bit grim, but the decease of the lamented Lowenstein certainly produced more humour, or at any rate jests of a tough kind, among the international aviators at the Paris Show than one has ever heard over anybody's decease. Everybody who knew the machine agreed that the door never opened by accident.

The Italian World-Record.

Last came the news of the amazing flight of Captain Ferrarin and Major del Prete on the Savoia from Rome to South America, non-stop. This was a subject which the Aviation people really did treat seriously. Ferrarin has a host of friends all over the World, as befits the first man to fly from Europe to Tokio, which he did some seven or eight years ago. Also he has a great many friends among English aviation people, because of his excellent flying and good sportsmanship in the Schneider Trophy Contest at Venice. Consequently so far from the Italian victory over the Long Distance Record being a purely Italian affair, it became a matter of international self-congratulation.

Quite a number of people have now flown the South Atlantic from East to West, but doing a non-stop flight from Rome to the coast of Africa and then going on over the South Atlantic without stopping seems to have impressed practical aviators very much in the same way as did Lindberg's huge flight from New York to Newfoundland before pushing off from West to East over the Atlantic.

That is what seems to catch hold of the practical aviator. If anybody started from Newfoundland and flew to Moscow (quite apart from the implied inclination to Bolshevism), nobody would think so very much about it in these days. But it is the long flight before starting over the ocean which is so impressive. Certainly Italian Aviation, the Regia Aeronautica, the pilots, the Savoia Company, and the Isotta-Fraschini motor people, do deserve the World's heartiest congratulations on that amazing performance.

Imperial Airways.

Thanks to the courtesy of Imperial Airways Ltd., one was enabled to put in quite a large amount of work during three days of last week. One left Croydon on July 4 at 07.50 hours in an Armstrong-Whitworth *Argosy* piloted by Mr. Perry. There was a very nice following wind which was inclined to be bumpy for the last half-hour of the journey.

It was a joy to watch Mr. Perry keeping that huge machine dead steady during that period. Over the Beauvais Ridge she took a couple of really good bumps and one would never have believed that a machine of such size could move so quickly as a mass. But never did Mr. Perry allow her to wallow in the least.

We arrived at Le Bourget at exactly 10.00 hours. After that it took an hour to get to the Imperial Airways' office in Paris in one of the most comfortable 'buses with one of the worst drivers one has ever seen. And after that, in the World's worst taxi, one took half an hour to reach an hotel which is not more than a quarter of an hour's walk away for anybody unencumbered by crutches and a leg encased in hardware.

In spite of these delays in ground transport, which only emphasised the evils of ground transport, one was in the Grand Palais before midday. Consequently one was able to get in a full day and a half in the Show. On Friday, July 6, one left the hotel at 07.00 hours, left Imperial Airways' office at 07.15, and left Le Bourget at 08.00 sharp. This time Mr. Rogers was the pilot. As he entered the machine he carefully bolted the back door top and bottom, remarking "We don't want any Lowensteining this trip."

As far as Beauvais the weather was clear. On top of the Beauvais Ridge we met a heavy cloud-bank coming in from the sea in front of a very good imitation of a Westerly gale. The top of the clouds being apparently something over 8,000 feet Mr. Rogers slid down the Northern slope of the Ridge and from there to Berck he drove the machine through what was pretty nearly solid rain. Being so low every inequality in the ground meant a corresponding bump but like Mr. Perry on the outward journey he held the machine absolutely steady. She bucked a bit but she never rolled or yawed, although owing to the wind being practically broadside on she was crabbing across country the whole way.

At Berck we struck blue sky and high clouds and Mr. Rogers took the Argosy up to about 3,000 feet over the Channel. The poor people who crossed by boat must have had a very nasty time, for the water was full of white caps which were being blown out in long streaks in front of the wave crests. The boats must have been very uncomfortable, but up at 3,000 feet the wind was absolutely steady. And although it took us 40 minutes from coast to coast (Le Touquet to Dungeness) there was never a movement in the machine.

Our arrival at the English coast was announced by a colossal jolt as we changed from sea air to ground air. And after that Mr. Rogers must have been working like a galley-slave. The huge ailerons of the Argosy were flapping the whole time as if the machine had been a bird propelled by such means. But the journey was perfectly comfortable. When the machine did move it was lifted bodily and dropped again. It never rolled or pitched. And the only person in the machine who was sick was an over-fed American child who would probably have been sick anyhow.

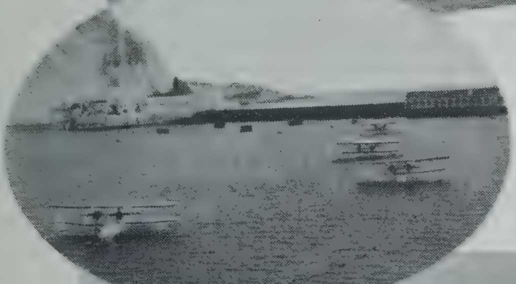
After we had landed, a gilded youth who said that he had been across once or twice before but only in fine weather inquired whether this was what might reasonably be called a rough day. One was able to tell him quite honestly that it was just about as rough as anybody was likely to want, and that he could thank the good Mr. Rogers for the fact that he had not been thrown out of his seat. Whereupon he registered the vow that in future he would always travel by Imperial Airways.

So Mr. Rogers has made another good customer for his firm. Certain other pilots who think it rather funny to let a machine wallow, and to feel the wheel spin through their hands when a gust really takes hold, would do well to make a note of the commercial value of keeping a machine steady.

One has heard a good deal about the noisiness of the Argosy with her three big Jaguars. Personally one found

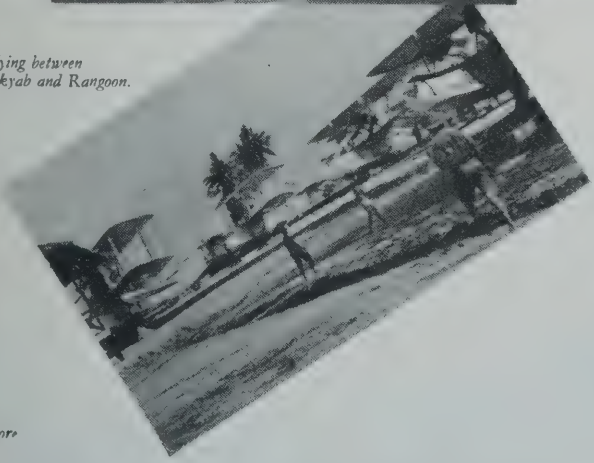
England to Australia on Napier Engines!

The four flying boats leaving Plymouth, England.



The four Supermarine-Napier flying boats at Naples.

Flying between Akyab and Rangoon.



At Singapore

FOUR Royal Air Force metal-hulled Supermarine "Southampton" flying boats, each fitted with two Napier aero engines, are engaged on an extended Service cruise.

The aircraft are flying in formation and keeping to a pre-arranged schedule.
Never before has such an ambitious flight been attempted

The machines have now reached Australia; 112,000 engine miles having been covered without mishap or trouble

On such a cruise much depends upon the engine For this flight, as for so many previous flights where consistent reliability has been required, Napiers were selected—not specially tuned engines but standard engines taken from the stores

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it must less noisy than a number of other machines in which one has travelled. Certainly there is a considerable amount of noise, but either the exhaust noises or the battering of the airscrews is different, or else the cabin does not drum as badly as some others. At any rate one was nothing like as deaf at the end of the journey either way as one has been in other machines.

The worst complaint one had was that there was a most infernal draught from the window, not between the window and the metal channel in which it slides but between the bottom of the metal channel and the woodwork to which it is fixed. The result was that instead of being able to sleep peacefully with one's head up against the window one had to prop oneself inconveniently on one side to avoid being smitten with facial paralysis owing to the draught.

The other complaint is the chairs. One is convinced that nobody in this country who makes seats for anything other than private houses or hotels ever sits down. Nobody yet has ever discovered a comfortable seat on a steamboat, barring a deck chair. There is not a comfortable theatre seat in London, since the old stalls were removed from the Alhambra, and there is hardly a comfortable seat in a railway carriage, least of all in saloons and dining cars and coaches in which one pays supplementary prices.

The Germans and the Dutch do know something about making aeroplane seats, but these high-backed, upright, cramped, cane edifices in air-liners would be absolutely unbearable for anything longer than the short journeys for which they are used. And it would be quite possible without spending any more money to make them quite comfortable.

Of course one is told not to look a gift horse in the mouth, so presumably one ought not to look a gift aeroplane in the seat, but really one is writing quite as much in the interests of Imperial Airways as in one's own interests, for Heaven knows when one will next screw up enough courage to travel by air.

At any rate one can compliment Imperial Airways on their extraordinary punctuality in starting, and especially one can congratulate Mr. Hall and his Staff at Croydon who are responsible for the maintenance of machines and engines. One has never sat behind engines which ran with more perfect regularity, either in car or aeroplane. And, as one has already said, one compliments the two pilots with whom one travelled on examples of perfect handling of their machines.

One must also compliment the staff at Croydon on the quickness with which they got the passengers and their belongings away. And likewise the drivers of the two Airways 'busses deserve praise for their fast but smooth driving and their handiness in the traffic. We only arrived at Croydon at 10.50, and we were at Airways House by 11.30. And Croydon is a good deal further from Charles Street than Le Bourget is from the Avenue de l'Opera.

The real hurry about getting back so early on Friday was to get all the foregoing remarks off one's mind so that one might journey to Blackpool on Friday afternoon for the North Country's first great Air Pageant, an account of which appears elsewhere in this paper.—C. G. G.

IN THE SHOW.

[Hereafter the machines in the show are described, in alphabetical order, by W. H. Sayers.]

Aero.

Aero Tovarna Letadel, Praha-Vysocany.

The Aero 23.

On the stand of the Cechoslovakian Ministry of Transport there is a sample of the Aero Aircraft Company's passenger-carrying machines which are used in some numbers by the State Air Lines. This is the Aero type 23, a single-engine cabin biplane seating six passengers, and a crew of two, who are placed behind the cabin As this cabin is of very ample cross-section and gives more leg-room than is often found in such machines, the view from the pilot's seat is scarcely of the best.

The workmanship of the machine is good, the detail design looks sound, but the machine is not very taking in appearance—largely perhaps because the general external colour scheme is mainly a very crude orange and brown.

Interior arrangements in the cabin look exceedingly comfortable—and judging from the general standard of comfort which seems to be expected on Continental air lines—this appearance is probably not misleading.

As this machine is exhibited by the operators and not by the manufacturers, little information as to its construction and characteristics was available.

Wings.—Single-bay biplane. Top wing slightly bigger span than bottom. Apparently of normal wooden construction. Double faired cable lift and landing wires. Ailerons on top wing only, balanced by Avro type auxiliary planes.

Fuselage.—Rectangular section, apparently timber framed and plywood covered.

Undercarriage.—Split-axle type with a somewhat complex arrangement of struts.

Power Plant.—One Jupiter engine, 420 h.p. Fuel tanks undiscoverable but apparently in fuselage.

Accommodation.—Six seats for passengers in cabin, with side entrances on both sides. Two side-by-side seats for crew behind cabin. There is a luggage space below crews' position and apparently another in front of cabin.

Weights.—Total loaded weight 3,200 kg. (7,040 lbs.), Fuel 450 kg. (990 lbs.), Oil 40 kg. (88 lbs.), Total disposable load 1,350 kg. (2,970 lbs.), Power loading 7.6 kg./h.p. (16.7 lbs./h.p.).

Performance.—Service cruising speed 145/150 km.h. (90/93 m.p.h.), Landing speed 65 km.h. (40 m.p.h.).

Albatros.

Albatros Flugzeugbau, Berlin-Johannesthal.

The Albatros L.75A, christened a little unfortunately for British eyes "Ass," is a very business-like two-seater which should be suitable for light mail or freight carrying, and has been adopted by the Deutsche Verkehrs Fliegerschule, the training centre for German air-line pilots as an advanced training machine.

The specimen shown is entirely devoid of any suggestion of a special "show-finish," a fact which rather emphasises the excellence of its workmanship throughout.

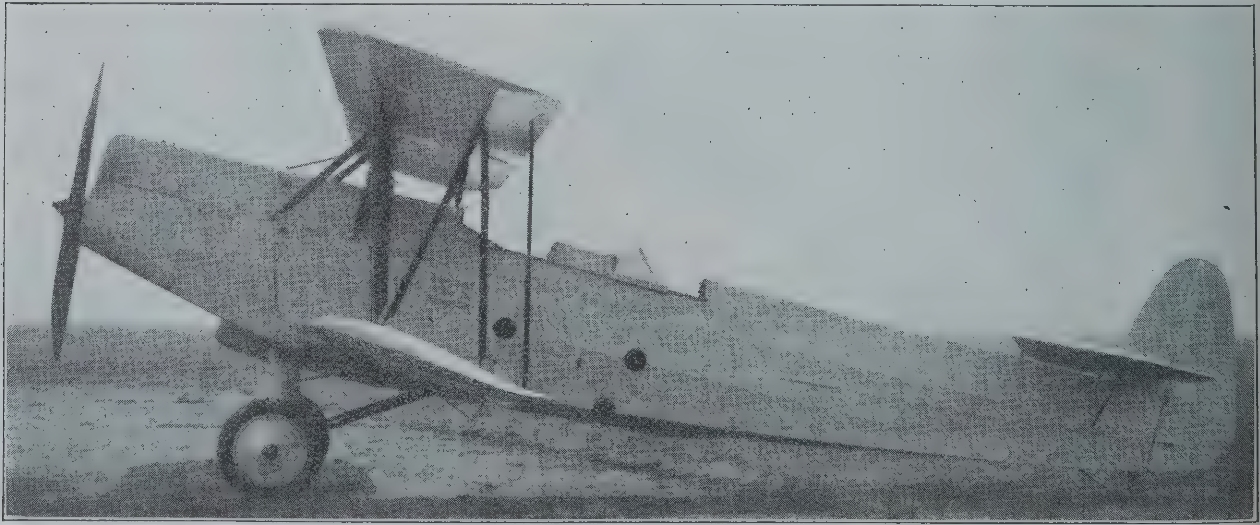
Wings.—Equal winged single-bay staggered biplane with one set of "N" struts per side and with lift and landing wires on front spars only. Wings of timber, fabric covered, except for under surface between spars, which is covered in three-ply. Ailerons on both wings, ample in area and inset from wing-tips.

Fuselage.—Welded steel tube construction. Section narrower at top than below, with fairly deep fairing on top.

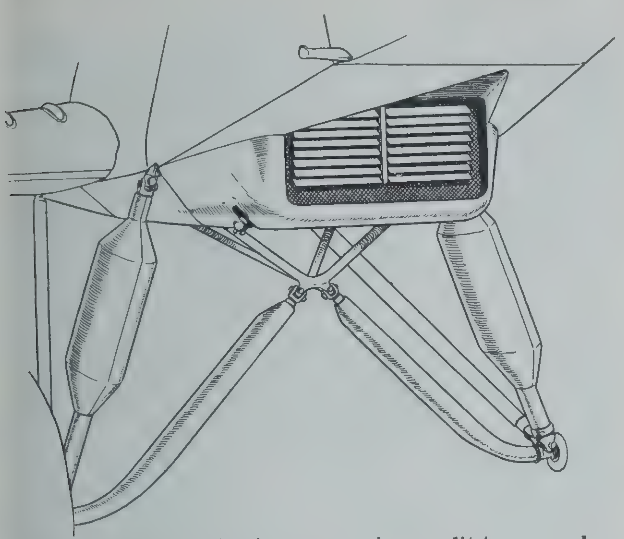
Tail Unit.—Normal monoplane type, with no balanced surfaces. Tail plane, braced by struts from bottom of fuselage, is adjustable in the air.

Undercarriage.—Split-axle Vee type with telescopic front legs to Vee.

Power Plant.—B.M.W.-Va engine of 320 h.p. with underslung radiator, Fuel tanks in top centre-section.



THE ALBATROSS ASS.—A two-seat training biplane fitted with a 320 h.p. B.M.W.-Va engine.



The Albatros rubber-in-compression split-type undercarriage and tunnel radiator.

ACCOMMMODATION.—Open cockpits for two in tandem behind wings, with dual stick type controls. Both have excellent views.

DIMENSIONS.—Span 12.5 m. (41 ft. 0 in.), Height 3.25 m. (10 ft. 8 in.), Length 10.0 m. (32 ft. 10 in.), Wing area 37 sq.m. (400 sq. ft.).

WEIGHTS AND LOADINGS.—Weight empty 1,085 kg. (2,300 lbs.), Weight loaded 1,785 kg. (3,830 lbs.), Wing loading 48.4 kg./sq. m. (9.6 lbs./sq. ft.), Power loading 5.58 kg./h.p. (12 lbs./h.p.).

PERFORMANCE.—Maximum speed 217 km.h. (141 m.p.h.), Landing speed 90 km.h. (56 m.p.h.), Climb to 3,000 m. (9,849 ft.) 10.5 min., Ceiling 6,500 m. (21,300 ft.), Range at 178 km.h. (110 m.p.h.) 1,600 km. (1,000 miles).

Albert.

Société Anonyme Avions Albert, Rue du Petit-Drancy, Drancy, Seine.

The Albert machine shown is a single-seat cantilever monoplane, of a type similar to the machine which made the first of the F.A.I. light aeroplane records for speed and height during 1927. The machine is shown without engine. It is quite a sound and well-made job, though not very highly finished.

WING.—Cantilever, semi-elliptic in plan, with a "washed-out" bi-convex section. Entirely of wood, covered in mahogany veneer.

FUSELAGE.—Rectangular, spruce framed and veneer covered.

TAIL UNIT.—Normal monoplane type, construction as wings.

UNDERCARRIAGE.—Split-axle Vee type, rubber shock-absorbers.

POWER PLANT.—No engine fitted. Machine is supplied with mounting for any desired air-cooled engine of about 40 h.p.

DIMENSIONS.—Wing area 10 sq. m. (107 sq. ft.).

WEIGHTS AND LOADINGS.—Weight empty 255 kg. (561 lbs.), Weight loaded 387 kg. (851 lbs.), Wing loading 38.7 kg./sq. m. (7.5 lbs./sq. ft.).

PERFORMANCE (40 h.p.).—Maximum speed 150 km.h. (93 m.p.h.), Landing speed 65 km.h. (45 m.p.h.), Climb to 1,000 metres (3,280 ft.), 6 min.

PRICE, WITHOUT MOTOR.—25,000 francs (£200).

Arado.

Arado, G.m.b.h., Berlin.

This firm shows an advanced training two-seater machine which differs in its general design and construction from the well-known Fokker cantilever biplanes only in having wings which are not wholly covered in three-ply. The whole of the lower wing, and all but about one-third of the span of the upper wing, have three-ply from leading edge to front spar only. In every other detail that is discoverable Fokker practice seems successfully to have been followed.

WINGS.—Staggered biplane, bottom wing of smaller chord and span than upper. N type torsion struts with no lift bracing between wings. Timber box-spars, plywood ribs. Ailerons on top wing with Avro type balancing planes.

FUSELAGE.—Welded steel tube.

TAIL UNIT.—Normal monoplane type, welded tube frames.

LANDING GEAR.—Split-axle Vee type.

POWER PLANT.—One B.M.W. V.A engine, 320 h.p. Underslung radiator. Engine mounting detachable. 610 litres (144 galls.) of fuel in centre section.

ACCOMMODATION.—Two open cockpits in tandem behind wings. Dual control.

DIMENSIONS.—Span 13.2 m. (43 ft. 5 in.), Length 8.89 m. (29 ft. 2 in.), Height 3.47 m. (10 ft. 5 in.), Wing area 39.98 sq. m. (430 sq. ft.).

WEIGHTS AND LOADINGS.—Weight empty 1,275 kg. (2,805 lbs.), Weight loaded 1,985 kg. (4,367 lbs.), Wing loading 50 kg./sq. m. (10.2 lbs./sq. ft.), Power loading 6.2 kg./h.p. (13.6 lbs./h.p.).

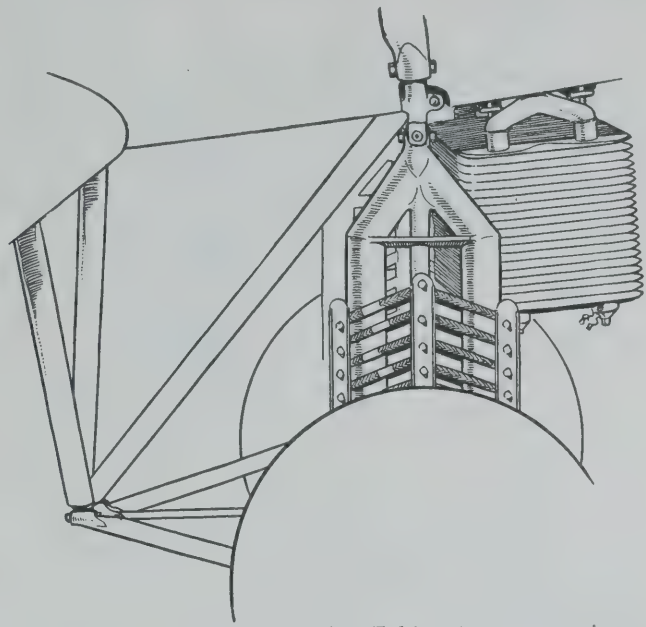
PERFORMANCE.—Maximum speed 180 km.h. (112 m.p.h.), Climb at 1,000 m. (3,280 ft.) 3 metres per sec. (590 ft. per min.), Ceiling 5,000 m. (16,140 ft.).

Avia.

Avia, Prague.

THE AVIA B.H.33.

The Avia B.H.33, the only machine on this firm's stand, is one of the few military aircraft in the Show which conforms to generally accepted British ideas of what a single-seat fighter should be. It is neat, compact and business-like in appearance. The detail design and construction is sound and simple, and the performance is one which surpasses all but a few of the very latest of British single-seat fighters with the same type of engine. It must however be remembered that it does not carry British fighter load. Moreover it is very markedly of the high-altitude type upon which so much British effort has been spent during the past few years.



The Arado Undercarriage with Fokker type suspension.

The excellent effect produced by this machine is definitely enhanced by the fact that it is shown in a normal service finish, of dark-brown dope, enamel to match, and no polished—or nickelled— metal work to dazzle the eye into a neglect of any absence of good workmanship.

WINGS.—Single-bay biplane, top wing of somewhat less span than bottom and interplane struts raking inwards upwards. Double lift and landing wires on both spars. Ailerons of ample looking area on bottom wing only. Wooden spars and ribs fabric covered. "N" type interplane struts of welded streamline tube with adjustable end fittings.

FUSELAGE.—Rectangular section, spruce framed and three-ply covered.

TAIL UNIT.—Normal monoplane type, unbalanced control surfaces. Tail plane adjustable in the air.

UNDERCARRIAGE.—Cross-axle Vee type. Axle is divided and hinged centrally to Vee struts from fuselage. Rubber cord springing.

POWER PLANT.—One Jupiter (6.3 compression) 480/600 h.p. engine on steel tube mount, fitted with standard exhaust ring. An airscrew spinner cowling from the exhaust ring and fairings behind cylinders give entry lines not unlike those of the Bristol single-seat fighter. Fuel tanks in fuselage and pump feed to carburettors.

ACCOMMODATION AND EQUIPMENT.—Pilot's seat behind centre section, giving view above and below wing, fitted with very effective Triplex glass wind screen. Two synchronised Vickers guns, with large ammunition stowage, oxygen equipment, seat type parachute. No wireless apparently fitted.

DIMENSIONS.—Span 8.9 m. (29 ft. 2 in.), Length 7.04 m. (23 ft. 1 in.), Height 2.79 m. (9 ft. 2 in.), Wing area 22 sq. m. (246 sq. ft.).

WEIGHTS AND LOADINGS.—Weight empty 830 kg. (1,825 lbs.), Fuel and oil 230 kg. (506 lbs.), Military load 190 kg. (418 lbs.), Loaded weight 1,250 kg. (2,750 lbs.), Wing loading 56.8 kg./sq. m. (11.2 lbs./ sq. ft.), Power loading 2.6 kg./h.p. (5.72 lbs./h.p.).

PERFORMANCE.—Maximum speed 278 km.h. (173 m.p.h.), Speed at 5,000 m. (16,140 ft.) 260 km.h. (161 m.p.h.), Landing speed 90 km.h. (56 m.p.h.), Climb to 5,000 m. (16,140 ft.) 7½ min., to 6,000 m. (19,700 ft.) 11 min., to 8,000 m. (26,100 ft.) 23 min., Ceiling 9,600 m. (31,500 ft.), Range 600 km. (370 miles).

Bernard.

Société Anonyme des Avions Bernard, La Corneuve, Seine.

THE BERNARD FIGHTER.

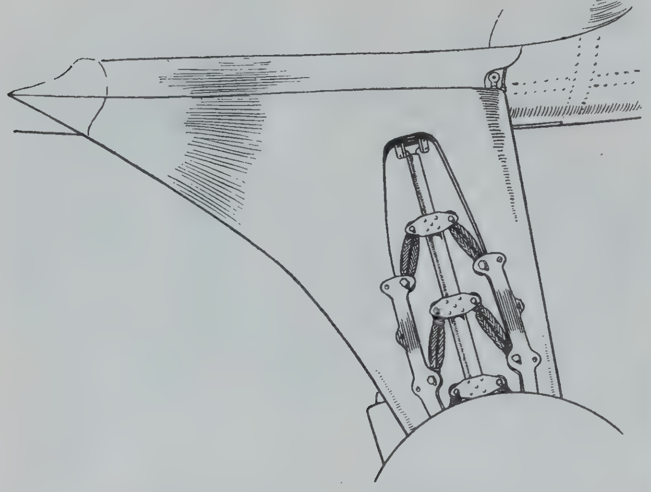
This firm showed a single-seat fighter very similar in design to the Bernard monoplane which holds the World's speed record for landplanes. It is of slightly larger dimensions than that machine, has an underslung radiator in place of the wing type, and, what is unusual in French machines, an undercarriage with a reasonable travel.

WING.—Tapered cantilever monoplane growing out of fuselage. All timber construction, including covering.

FUSELAGE.—Wooden monocoque.

TAIL UNIT.—Normal monoplane type with fin and tail plane built in one with fuselage.

UNDERCARRIAGE.—A pair of streamline wooden legs built with fuselage and tied together by a steel cross member. Wheels are supported by a telescopic member running up interior of legs, with rubber ring shock-absorbers somewhat like the Fokker type and an oil dashport.



The Bernard Undercarriage.

Power Plant.—400 h.p. Vee type Hispano. Tanks in wings.

Dimensions.—Span 10.8 m. (35 ft. 5 in.), Length 7.45 m. (24 ft. 6 in.), Height 2.5 m. (8ft. 2 in.), Wing area 16.7 sq. m. (180 sq. ft.).

Weights and Loadings.—Weight empty 1,023 kg. (2,250 lbs.), Fully loaded 1,370 kg. (3,014 lbs.), Wing loading 82 kg./sq. m. (16.7 lbs./sq. ft.), Power loading 3.42 kg./h.p. (7.5 lbs./h.p.).

Performance (estimated).—Maximum speed 330 km.h. (205 m.p.h.), Speed at 4,000 m. (13,120 ft.) 320 km.h. (199 m.p.h.), Ceiling 9,250 m. (30,000 ft.).

The Bernard Berline.

This is already well known and at present holds the World's record for speed over 1,000 km. with 1,000 kg. load. It is an eight-passenger cabin monoplane, entirely built and covered in wood, fitted with a Jupiter engine. A description and specification of this machine appeared in The Aeroplane of April 25, 1928, and it is therefore not necessary to repeat it here. The machine is well built, nicely finished, and looks a thoroughly business-like job.

B.F.W.

Bayerische Flugzeugwerke A.G., Augsburg.

This firm, despite quite a large stand, showed no aeroplanes. There was however a model to about one-fifth scale of the Udet Flamingo training biplane which has come into extended use for school and exhibition flying in Germany. The model is stripped of fabric and shows all details of construction accurately, and if the real machine is as well finished as the model it is an exceedingly fine piece of work.

The Flamingo type is now some years old, and is a perfectly straight-forward single-bay two-seater biplane of wooden construction fitted with a Siemens Halske air-cooled radial of 75 h.p. It has frequently been described before.

Bleriot.

Blériot Aéronautique, Quai du Maréchal Galliéni, Suresnes.

The Spad 91.

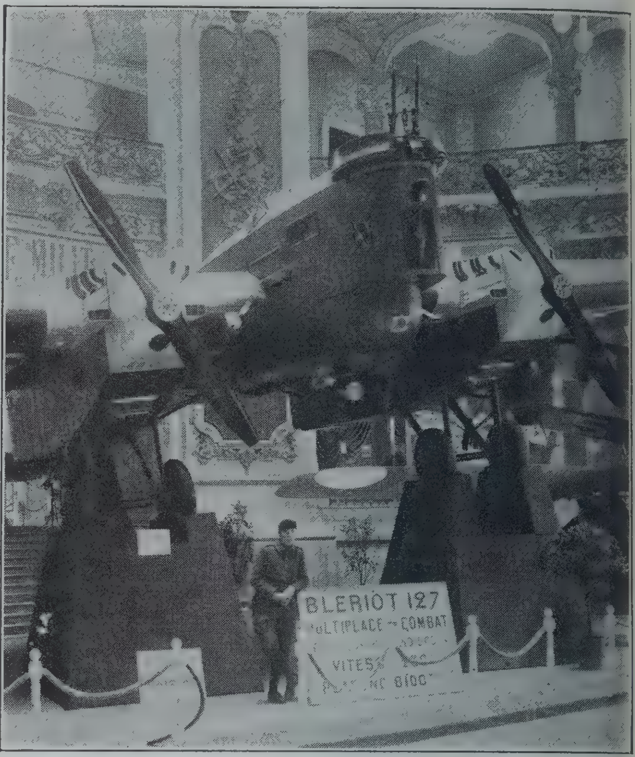
The sole occupant of this stand is one of the new Spad 91 fighters of the light type *"dit Jockey."* Though the term has publicly been applied to this particular class of machine since the Nieuport-Astra "Jockey" was shown at the last Salon, and is to be found in the official catalogue of the present Salon, the French Military Authorities have, it is alleged, now forbidden the use of the word in public.

This machine is perched on pillars in the attitude of a heavily-banked climbing turn which is very effective from the spectacular point of view, but rather inconvenient for the purposes of detailed inspection. As in addition no one was ever discovered on the Bleriot stand who was ready and able to give any information concerning it, there is little that one can say of it except that it is a very nice-looking little machine, clean in its lines and well finished.

A description of the Spad 91 with the 500 h.p. Vee type Hispano-Suiza engine was published in The Aeroplane of June 27 (p. 916). The machine has the 500 h.p. three-row Hispano-Suiza instead of the V, but otherwise does not differ in any discernable way from the type already described.

The Bleriot 127.

This machine is not on the Bleriot stand, but may be found in the exhibit of the *Aéronautique Militaire.* This is a large twin-engine cantilever monoplane, carrying a heavy bomb load and an imposing armament, which has been ordered by the French Government in some quantity. The performances claimed for this machine are remarkably good considering the great size of the machine, and it is quite an impressive and pleasing looking craft.



AT THE PARIS SHOW.—The Blériot multi-place fighter.

Wings.—Cantilever, thick section. Of uniform chord and section from body to wing engine nacelles, thereafter tapering in chord and section to the tips. Wings attached to body nearly midway up. Wooden framing fabric covered.

Fuselage.—Rectangular, spruce framed, fabric covered.

Tail Unit.—Normal monoplane type, no surfaces balanced, but elevators have trailing edge flaps over half their span, presumably to act as servo-motors.

Undercarriage.—One narrow track cross-axle Vee type under each wing engine nacelle.

Power Plant.—Two 500 h.p. Hispano-Suiza "Vee type" in nacelles attached to lower surface of nacelles. Radiators suspended below wing between nacelle and fuselage. Fuel tanks probably in wing

Accommodation.—Gunner-bomber in nose of central body with gun-ring. Dual control side-by-side cockpit over wing leading edge. Two cockpits with gun-rings in tail of engine nacelles behind and below trailing edge of wings, giving almost unbroken field of fire except ahead through airscrews and wing.

Dimensions.—Span 23.2 m. (75 ft. 2 in.), Length 15.3 m. (50 ft. 6 in.), Wing area 88 sq. m. (950 sq. ft.).

Weights and Loadings.—Empty 3,252 kg. (7,150 lbs.), Fully loaded 4,466 kg. (9,820 lbs.), Wing loading 50.7 kg./sq. m. (10.6 lbs./sq. ft.), Power loading 4.47 kg./h.p. (9.83 lbs./h.p.).

Performance.—Speed at 2,000 m. (6,560 ft.) 221 km.h. (137 m.p.h.), at 6,000 m. (19,680 ft.) 207 km.h. (128 m.p.h.), Climb to 4,000 m. (13,140 ft.) 12 min. 21 sec., Ceiling 8,100 m. (26,600 ft.).

Bourgois.

Avions Legers Bourgois, 33, Rue Jules-Guesde, Levallois-Perret.

The Bourgois A.T.35.

On the stand below the galleries this firm showed a very attractive little two-seater light monoplane, entirely built of and covered with wood. According to the maker's specification this machine has quite a useful performance considering the low-powered engine installed, and for economical aerial touring in a country well provided with flat open spaces such a machine might well achieve a considerable measure of success. The machine is called the type A.T.35 and is constructed under *licence Senemaud.*

Wings.—Strut braced monoplane, wing tapering in chord and thickness to the tips. Built in one piece, on timber spars, three-ply covered. Two struts from bottom of fuselage on each side and a central cabane. Ailerons along whole span, which can be used as flaps to reduce landing speed.

Fuselage.—Oval section, built on spruce longerons and formers and covered with three-ply. Very clean in outline.

Tail Unit.—Normal monoplane type, with undivided elevator and rudder entirely above it. Unbalanced control surfaces.

Undercarriage.—Split-axle Vee type with rubber shock absorbers.

Power Plant.—35 h.p. three-cylinder Anzani engine.

Accommodation.—Passenger in open cockpit under wing. Pilot in second cockpit behind trailing edge. Stick type control in back seat only. Both cockpits are remarkably roomy for so small a machine.

Dimensions.—Span 8.85 m. (29 ft.), Length 6.4 m. (21 ft.), Wing area 13 sq. m. (140 sq. ft.).

Weights and Loadings.—Weight empty 220 kg. (484 lbs.), Fuel (40 litres = 9 galls.) 30 kg. (66 lbs.), Disposable load (excluding fuel) 170 kg. (374 lbs.), Total weight 420 kg. (924 lbs.), Wing loading 32.2 kg./sq. m. (6.6 lbs./sq. ft.), Power loading 12 kg./h.p. (26.4 lbs./h.p.).

Performance.—Maximum speed 140 km.h. (87 m.p.h.), Climb to 1,000 m. (3,280 ft.) 7 min., Ceiling 3,600 m. (11,800 ft.), Range 450 km. (280 miles) at 100 km.h. (62 m.p.h.).

Breguet.

Société Anonyme des Ateliers d'Aviation Louis Breguet, 115, Rue de la Pompe, Paris.

THE ROUND-THE-WORLD MACHINE.

The place of honour on the Breguet stand is occupied by the Breguet XIX No. 1685, with the 600 h.p. Hispano-Suiza engine used by Costes and Le Brix in their remarkable voyage round the World. The wing tip which was damaged in landing at Marseilles has been repaired, and the whole lower wing recovered, otherwise the machine is shown just as it reached Paris after the journey.

This particular machine is one of three machines built by the Breguet firm for attacks on long-distance records. In July, 1926, with a 500 h.p. Hispano engine and piloted by Girier and Dordilly, it established a non-stop record of 4,700 km. (2,920 miles) in 27 hours between Paris and Omsk. In September, 1926, piloted by Costes and de Vitrolles, it flew non-stop from Paris to Assouan (4,100 km.—2,540 miles) in 25 hours. In October, 1926, piloted by Costes, with Rignot as navigator it once more set up a World's distance record of 5,650 km. (3,500 miles) between Paris and Jask, and was thereafter on exhibition at the previous Salon in December, 1926.

In June, 1927, again piloted by Costes and Rignot, it flew non-stop to Nijnitagilsk, 5,100 km. (3,170 miles).

After these performances it was modified for the journey across the Atlantic to South America which ended recently as a journey round the world—except for the crossing of the Pacific—and a return to Paris from Tokio in six days. The modifications consisted of the fitting the 600 h.p. engine, of two extra petrol tanks—one of 200 litres (44 galls.) and one of 100 litres (22 galls.)—on each side of the wings, giving a total of 600 litres (132 galls.) more petrol capacity, the fitting of flotation gears, consisting of Busteed type bags in the fuselage and of non-return jettison valves to the petrol tanks, so that these could be emptied but could not then refill with water.

To avoid any risk of turning over in the case of alighting on water, an inverted hydroplane was fitted to a false tail skid which could be protruded from the body—a device also originally developed under the *ægis* of Wing Cdr. Busteed during the war. Further a wireless sending and receiving set, and a number of minor modifications in equipment were added.

When this machine left Paris on its journey round the World, it weighed, with all equipment, including crew, a pair of collapsible boats, spares, etc., 1,972 kg. (4,335 lbs.). It carried 2,700 litres (594 gallons) of fuel weighing 1,894 kg. (4,170 lbs.), 140 litres (34 galls.) of oil, 152 kg. (334 lbs.), and 250 kg. (550 lbs.) of luggage and letters for delivery in South America, making a total loaded weight of 4,268 kg. (9,389 lbs.).

On this last voyage the machine flew 57,000 km. (16,850 miles) in 350 flying hrs. Its total to date is 120,000 km. (74,500 miles) in 650 hours, and it certainly does not look seriously the worse for it.

THE BREGUET 280T.

This is one of several versions of the Breguet XIX type, transformed into a civil passenger carrier by fitting it with an enlarged fuselage containing a cabin. The wing section and the undercarriage are identical with those of the long distance type machine already described.

The body extends from lower to upper wing, and the seats for the crew of two are ahead of the cabin, just below the leading edge of the upper wing and are totally enclosed.

The cabin has seats for eight passengers which give very reasonable leg-room and there is an openable window to each seat. Luggage space is provided below the crew seats and also behind the cabin.

Fuel is carried in tanks below the cabin floor. The engine mounting is a separate unit, so that any desired engine of adequate power may be fitted. In the sample shown a geared Renault of 500 h.p. is fitted.

The whole machine is built on the well-known Breguet system of duralumin construction, and most of the fittings are identical with those used on the military XIX.

Dimensions.—Span 17.5 m. (75 ft. 6 in.), Length 12.25 m. (40 ft. 3 in.), Height 4.08 m. (13 ft. 5 in.), Wing area 56 sq. m. (600 sq. ft.).

Weights and Loadings.—Weight empty (Renault engine) 1,375 kg. (3,820 lbs.), Weight fully loaded 3,300 kg. (7,260 lbs.), Wing loading 59 kg./sq. m. (12.1 lbs./sq. ft.), Power loading 6.6 kg./h.p. (1.45 lbs./h.p.).

Performance.—Maximum speed 210 km.h. (130 m.p.h.), Climb to 2,000 m. (6,560 ft.) 6 min., Ceiling 4,000 m. (13,120 ft.), Range with 8 passengers and 220 kg. (484 lbs.) of goods 500 km. (310 miles), Maximum range with approximately 250 kg. (550 lbs.) reduced pay load 1,100 km. (675 miles).

Bristol.

The Bristol Aeroplane Co. Ltd., Filton, Bristol.

THE BRISTOL SINGLE-SEAT FIGHTER.

The Bristol single-seat fighter—the only British aeroplane in the show—is, by general admission, the most interesting machine to be seen in the Grand Palais. It seems to be somewhat difficult to persuade non-British visitors to the Bristol stand that a machine whose structure is entirely of steel can fail to be heavy, or that the construction of machines by the essentially British corrugated-steel-strip methods can be a practical proposition, but even where these incredulities have been most marked the greatest possible admiration has been expressed for its beauty of design, its remarkable finish, and for the completeness and compactness of its equipment.

Wings.—Single-bay, unequal winged biplane. Spars, corrugated box section, solid drawn tube drag struts and swaged rod bearing. Ribs, Warren truss girders of channel section. Frige type ailerons on top wing only. Interplane struts streamline steel tube.

Fuselage.—Rectangular section framing. Longerons of circular section with two projecting lips at right angles built up from two strips. Rigid Warren truss bracing also of built-up strip. Faired to an oval section by light steel frames and stringers.

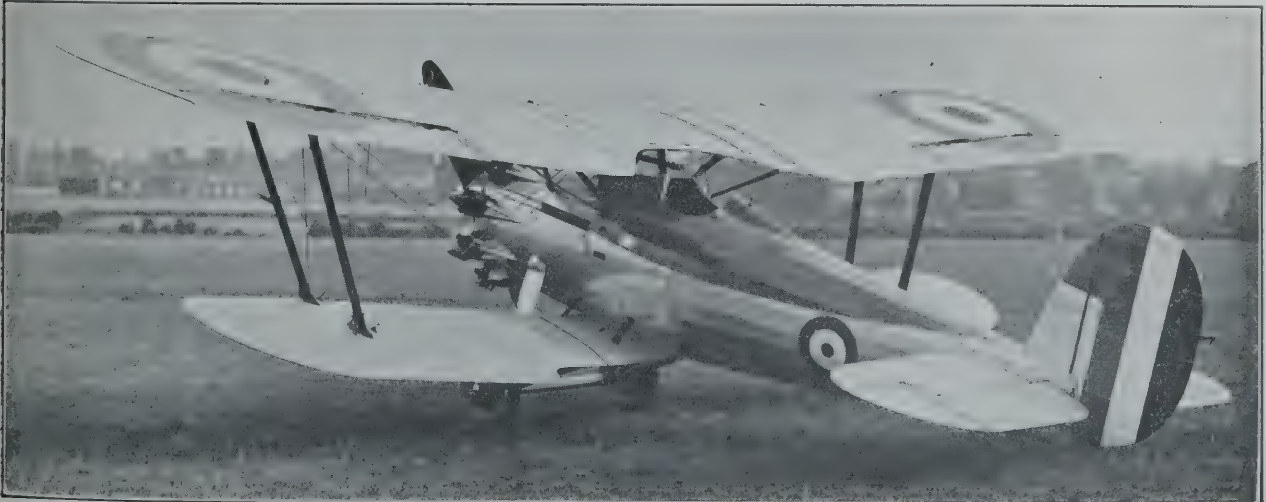
Tail Unit.—Normal monoplane type. Tail plane, etc., spars of circular tube. Horn-balanced elevators and fin.

Undercarriage.—Cross-axle Vee type. Front leg of each Vee is attached to the top longeron of fuselage and telescopes on compression rubbers and an oleo damper.

Power Plant.—One Jupiter engine series VI (high compression). Two fuel tanks (35 galls. = 160 litres each) in top wings, direct gravity feed. Combined oil tank and cooler in bottom of fuselage.

Accommodation.—Pilot behind trailing edge of cut-back centre section in a seat adjustable for height, with adjustable rudder bar.

Equipment.—Two synchronised Vickers, one at each side of cockpit. Marconi A.D.5 transmitter, A.D.12 receiver short-wave wireless set working on fixed aerial. Seat type parachute, oxygen apparatus, etc.



THE BRISTOL SINGLE-SEAT FIGHTER.—An all-metal biplane fitted with the Bristol Jupiter engine, which has created an excellent impression at the Salon.

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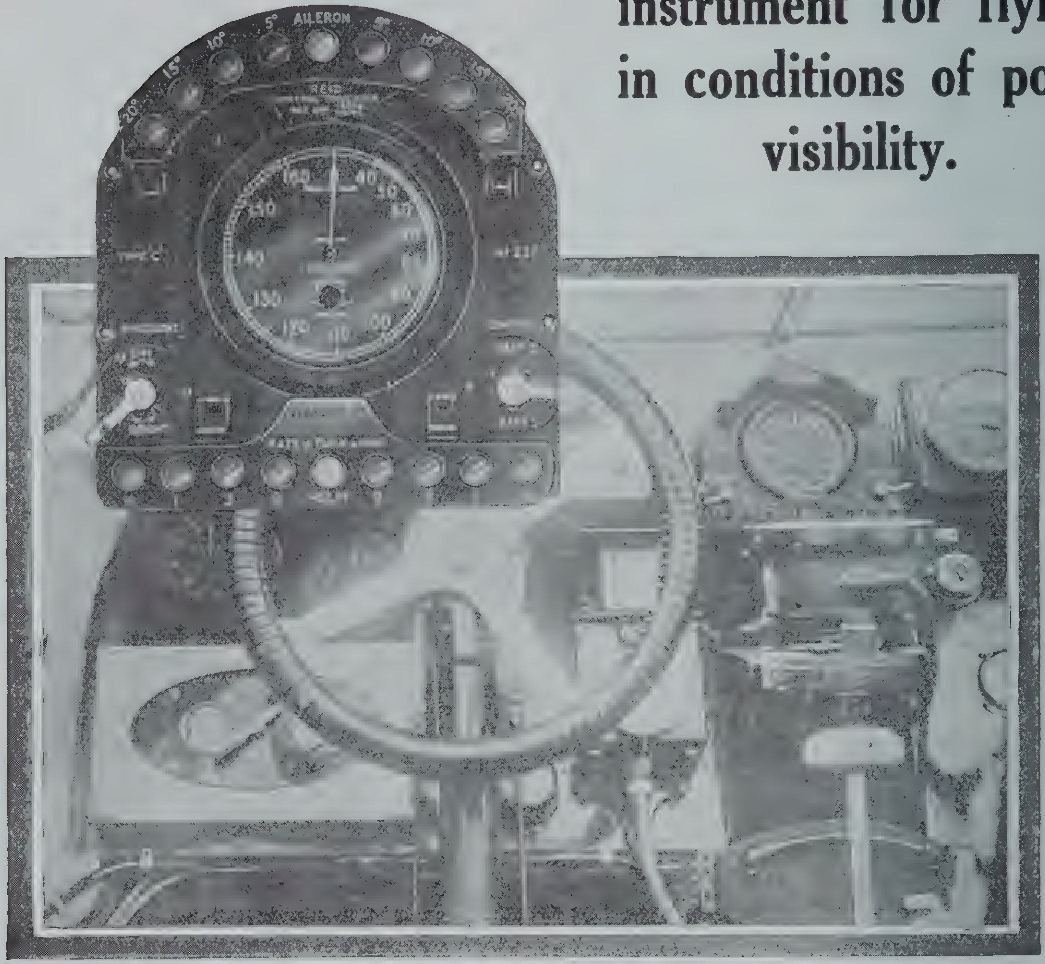

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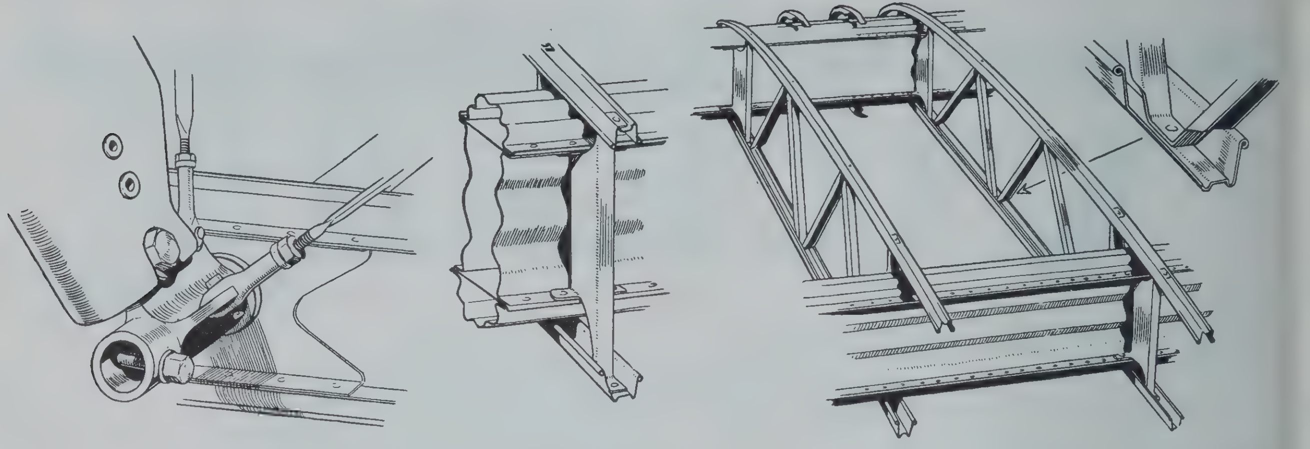
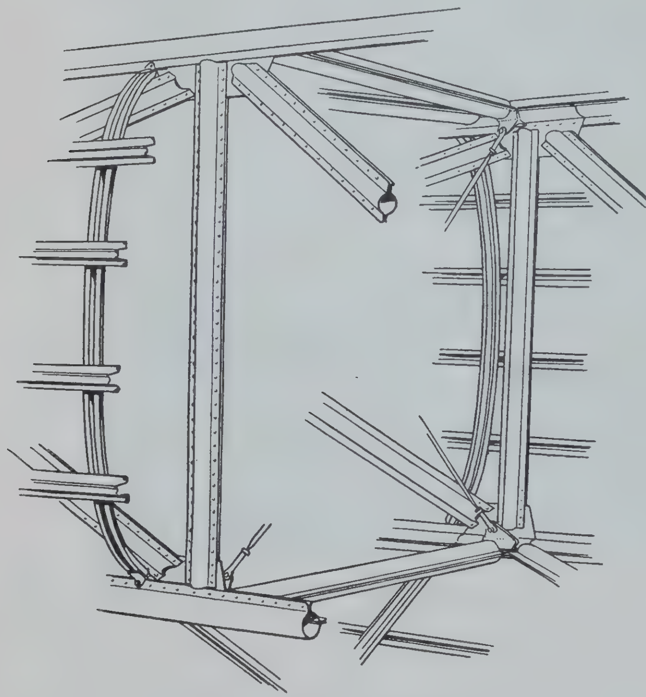


BRISTOL WING CONSTRUCTION.—From left to right: Attachment of interplane strut; spar section and attachment of rib; and section of wing.

Dimensions.—Span 31 ft. 6 in. (10.31 m.), Length 23 ft. 0 in. (7.56 m.), Wing area 265 sq. ft. (28.5 sq. m.).

Weights and Loadings.—Weight empty 1,987 lbs. (903 kg.), Weight loaded 3,120 lbs. (1,418 kg.), Wing loading 10.9 lbs./sq. ft. (49.5 kg./sq. m.), Power loading 6.9 lbs./h.p. (3.15 kg./h.p.).

Performance.—Speed at 10,000 ft. (3,050 m.) 178 m.p.h. (286.5 km.h.), at 20,000 ft. (6,100 m.) 172 m.p.h. (276.7 km.h.), Climb to 20,000 ft. (6,100 m.) 12.1 min., to 26,500 ft. (8,534 m.) 27.2 min., Service ceiling 27,000 ft. (8,900 m.).



Bristol Fuselage Construction.

C.A.M.S.

Chantiers Aéro-Maritime de la Seine, 16, Rue d'Aguesseau, Paris.

The C.A.M.S.53.

This is a flying boat with twin engines mounted in tandem in one nacelle below the upper centre section, designed for civil purposes. The example shown has no fittings for passengers, and the amount of porthole area provided suggests that it is meant purely for postal and freight service, though the type is said to be available for passenger work.

It is but one of a range of seaplanes, types Nos. 53, 56, and 57, all identical except for the type of engine used, and all derived from the C.A.M.S.51 type Grands Raids which holds the world's altitude record with 2,000 kg. of load, and has made a number of long-distance journeys piloted by *Lieutenant de Vaisseau* Paris.

Wings.—Single-bay equal-winged biplane, no stagger. Wooden construction, fabric-covered. Ailerons on both wings.

Hull.—Two-step type with a very flat Vee bottom, and slab sides. Built on timber frames, three-ply covered. Moderate sized wing-tip floats below interplane struts.

Tail Unit.—Normal monoplane type, horizontal surfaces carried from fin well above hull. Balanced control surfaces.

Power Plant.—Two 500 h.p. Hispano-Suiza engines (geared) in tandem below top centre section. Lamblin radiators at each side of nacelle. Fuel tanks built into lower centre section and droppable. A gas-starter is fitted.

Accommodation.—Crew of two side-by-side well forward of wings in totally enclosed cockpit. Behind this is a wireless cabin. Space extending to well behind trailing edge available for goods or passenger accommodation.

Dimensions.—Span 20.4 m. (70 ft.), Length 14.82 m. (49 ft.), Height 5.52 m. (18 ft. 1 in.), Wing area 115 sq. m. (1,240 sq. ft.).

Weights and Loadings.—Weight empty 3,850 kg. (8,470 lbs.), Normal disposable load 2,340 kg. (5,150 lbs.) (including crew, pay load, fuel), Normal loaded weight 6,190 kg. (13,620 lbs.), Wing loading 53.8 kg./sq. m. (11 lbs./sq. ft.), Power loading 6.19 kg./h.p. (13.6 lbs./h.p.).

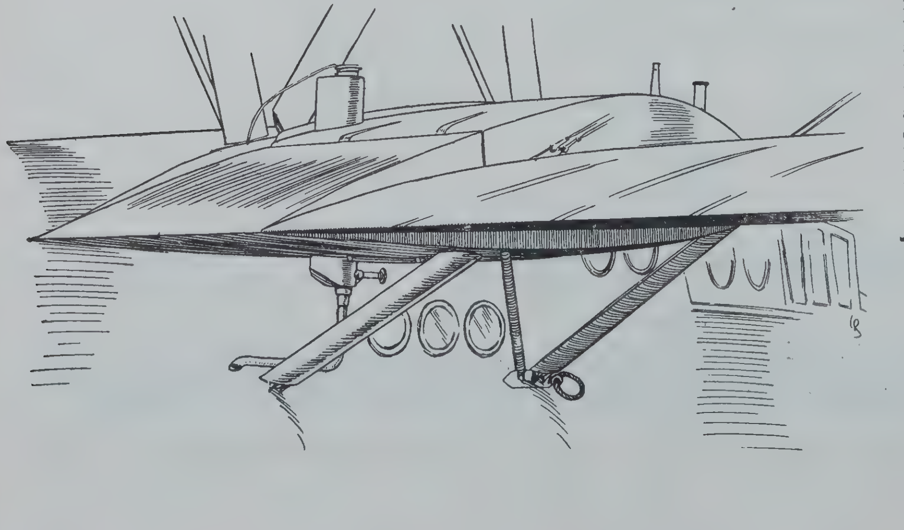
Performance.—Maximum speed 210 km.h. (130 m.p.h.), Minimum speed 100 km.h. (62 m.p.h.), Climb to 2,000 m. (6,560 ft.) 11 mins. Ceiling 5,300 m. (17,400 ft.).

Caudron.

Avions Caudron, 52, Rue Guynemer, Issy-les-Moulineaux.

The Caudron 17-A2 (License Descamps-Brunet).

This is a machine practically identical in general arrangement and layout to one exhibited by the original Descamps firm two years ago. It is now shown in skeleton form to exhibit the metal construction details. The present exhibitors do not appear willing to publish any details of dimensions, performances or the like, but fairly full particulars have long since been given for the original Descamps-Brunet.



One of the two main fuel tanks mounted in the bottom wing-roots of the C.A.M.S.53 flying-boat.

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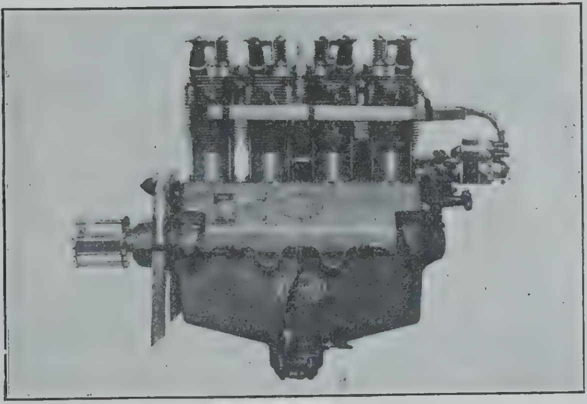

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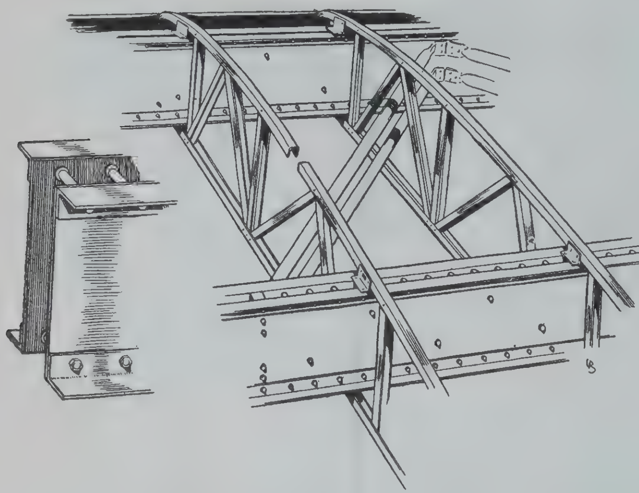


The wing construction of the Caudron 17-A2.

The metal construction is quite interesting. The fuselage is in round duralumin tube, all sides of the frame being triangulated by diagonal tubes. Simple wrapped fittings in two pieces of steel embrace the longerons. These are held together and clamped to the longeron by small screws and nuts. The struts are attached to the fittings by flattened ends and tubular rivets. All the fittings are identical, and replacement needs no special tools.

The wing spars are two channel sections of duralumin back to back, separated by tubular distance pieces and held by 1½ m/m. screws. At the lift strut attachments a separate flat flange plate is bolted to the top and bottom of the channels forming a box over a short distance. Away from the point of maximum stress the spars are reduced by first stopping this flange piece, secondly by tapering the flanges of the two channels until at the tips there is nothing but webs and distance pieces left, and finally by drilling large holes in the web. The whole construction is undoubtedly fairly simple, and is in many ways well above the average of French quality in mechanical soundness.

There is no wire bracing of any kind in this machine, and practically all controls are of the push or pull rod type.

As a whole the machine is ugly, but it has one or two excellent performances to its credit.

Wings.—Sesquiplan with heavy backward stagger. The small lower wing is braced by a pair of N struts from the top of the fuselage. A second set of N struts runs from the bottom wing outwards and upwards to about the half-span of the upper wing. Ailerons on top wing only. Duralumin spars and ribs, fabric-covered. Drag bracing by diagonal tubes.

Fuselage.—Rectangular section, round duralumin tube, fabric-covered.

Tail Unit.—Normal monoplane type, duralumin tube frames. Tail plane strut-braced to fuselage. No surfaces balanced.

Power Plant.—One 450 h.p. Lorraine-Dietrich "W" type, direct drive, on detachable mount, interchangeable with mounts for any engine of suitable h.p.

Accommodation.—Pilot below cut-out trailing edge of top wing. Rear gunner immediately behind, with removable dual control.

Note.—No details of performance, etc., available.

The Caudron 140.

This is a perfectly normal two-seater army co-operation and reconnaissance machine, of normal timber construction, and of quite pleasing lines. Considering the low power of the engine it can only be regarded as either an operational training machine or for use in service against a Power devoid of modern equipment.

Wings.—Single bay biplane, upper wing of greater span than lower, and raking struts. Spars and ribs of wood, interplane struts of streamline tube, streamline bracing wire. Ailerons on top wing only.

Fuselage.—Rectangular timber frame, faired to rounded section and fabric-covered.

Tail Unit.—Normal monoplane type, unbalanced control surfaces.

Undercarriage.—Cross-axle Vee type. Rubber cord springing.

Power Plant.—One Salmson 9AB 230 h.p. (air-cooled) on detachable duralumin mounting, interchangeable with mounts for alternative engines. Tanks (droppable) in fuselage, 200 litres (44 galls.) capacity.

Dimensions.—Span 11.3 m. (37 ft.), Length 7.84 m. (25 ft. 8 in.), Height 3.2 m. (10 ft. 6 in.), Wing area 28 sq. m. (300 sq. ft.).

Weights.—Weight empty 896 kg. (1,971 lbs.), Fuel and oil 160 kg. (352 lbs.), Military load 240 kg. (528 lbs.), Loaded weight 1,300 kg. (2,860 lbs.), Wing loading 46.5 kg./sq. m. (4.55 lbs./sq. ft.), Power loading 5.65 kg./h.p. (12.4 lbs./h.p.).

Performance.—Speed at 2,000 m. (6,560 ft.) 185 km.h. (115 m.p.h.), Ceiling 5,000 m. (16,400 ft.).

The Caudron 109.

A light monoplane two-seater fitted with the little 40 h.p. 9-cylinder Salmson engine. This machine is by no means new, as it won the Coupe du Roi and three other prizes at the Brussels meeting of May, 1925, and has been winning competitions designed to encourage economical touring and the like ever since. Its latest success was scored at Rheims in June of this year, when it won the second prize in the Rallye Aerienne at Rheims, carrying two persons 960 km. in under 10½ hours.

The first prize at this meeting was won by a similar three-seater, the Caudron 110, with the 60 h.p. Salmson engine.

The machine shown at the Salon is stripped of fabric to display the detailed structure, and bears an official announcement that its strength justifies the granting of an aerobatic C. of A.

Wings.—Strut-braced parasol monoplane. Spars rectangular duralumin tubes, ribs spruce and three-ply, and duralumin tube bracing struts.

Fuselage.—Rectangular section, spruce longerons and struts, wire braced.

Undercarriage.—Cross-axle Vee type, rubber cord sprung.

Power Plant.—Salmson 9-cylinder (9A.D.) 40 h.p. air-cooled. Fuel tanks in dash behind engine, gravity feed.

Accommodation.—Two open cockpits in tandem, one below one behind wing. Dual controls.

Dimensions.—Span 11.5 m. (37 ft. 10 in.), Length 6.5 m. (21 ft. 4 in.), Height 2.27 m. (7 ft. 5 in.), Wing area 19.1 sq. m. (206 sq. ft.).

Weights and Loadings.—Weight empty 328 kg. (722 lbs.), Weight loaded 555 kg. (1,222 lbs.), Wing loading 29.1 kg./sq. m. (5.9 lbs. /sq.ft.), Power loading 13.9 kg./h.p. (30.5 lbs./h.p.).

Performance.—Speed 126 km.h. (78 m.p.h.), Climb to 1,000 m. (3,280 ft.) 16 min.

Dewoitine.

Société Aéronautique Française des Avions Dewoitine, Chantillon-sous-Bagneux, Seine.

The Dewoitine 27.

This firm shows a single-seat fighter of their design, actually built under licence by the Swiss Government Factory at Thun. In general this machine resembles well-known earlier types of Dewoitine, but it has become really a cantilever instead of a strut-braced machine, is noticeably smaller and lighter than most of the previous types, and is presumably of the type *dit*, or perhaps one should say, *interdit "Jockey."*

It is claimed that the characteristics of the wing section used give full control down to the minimum speed attainable, and that the dangers of stalling have been largely avoided. A machine of similar type seen at the meeting at Vincennes spun and looped slowly and it is possible that the small elevators make it difficult really to stall on this machine.

Wing.—Parasol monoplane, all in one piece, supported on each side by a pair of struts, one from top and one from bottom of fuselage to each spar at about one-quarter of the half-span from centre line. Spars and ribs of duralumin, fabric-covered. Maximum chord of wing at about one-third out towards tips, marked taper to tips, and a cut back of the trailing edge towards centre line. Narrow chord, unbalanced ailerons over two-thirds of span.

Fuselage.—Oval section duralumin sheet covering rivetted to channel section formers, reinforced by a few light tubular longerons.

Tail Unit.—Normal monoplane type, duralumin-covered without external bracing. Surfaces unbalanced. Very small elevators.

Undercarriage.—Vee type. The axle is hinged centrally and supported on a cabane above the level of the wheel centres, producing a semi-split axle effect.

Power Plant.—500 h.p. Vee (type 57) Hispano-Suiza engine. Underslung Lamblin radiator. Droppable fuel tank in bottom of fuselage.

Accommodation.—Pilot's seat behind trailing edge. Equipped with two synchronised machine-guns, and seat type parachute.

Dimensions.—Span 9.8 m. (32 ft. 2 in.), Length 6.5 m. (21 ft. 4 in.), Height 2.9 m. (9 ft. 6 in.), Wing area 17 sq. m. (182 sq. ftt.).

Weights and Loadings.—Weight empty 930 kg. (2,046 lbs.), Weight loaded 1,370 kg. (3,014 kg.), Wing loading 80.7 kg./sq. m. (16.5 lbs./sq. ft.), Power loading 2.54 kg./h.p. (6.03 lbs./h.p.).

Performance.—Speed at sea level 310 km.h. (192 m.p.h.), at 5,000 m. (16,400 ft.) 295 km.h. (183 m.p.h.), Climb to 5,000 m. (16,400 ft.) 8½ min., Service ceiling 9,250 m. (30,000 ft.), landing speed 90 km.h. (56 m.p.h.).

Dornier.

Dornier Metallbauten G.m.b.H., Friedrichshafen.

This firm's commodious stand is occupied by one beautiful scale model of the Jupiter-engined Super-Wal, and a number of excellent photographs.

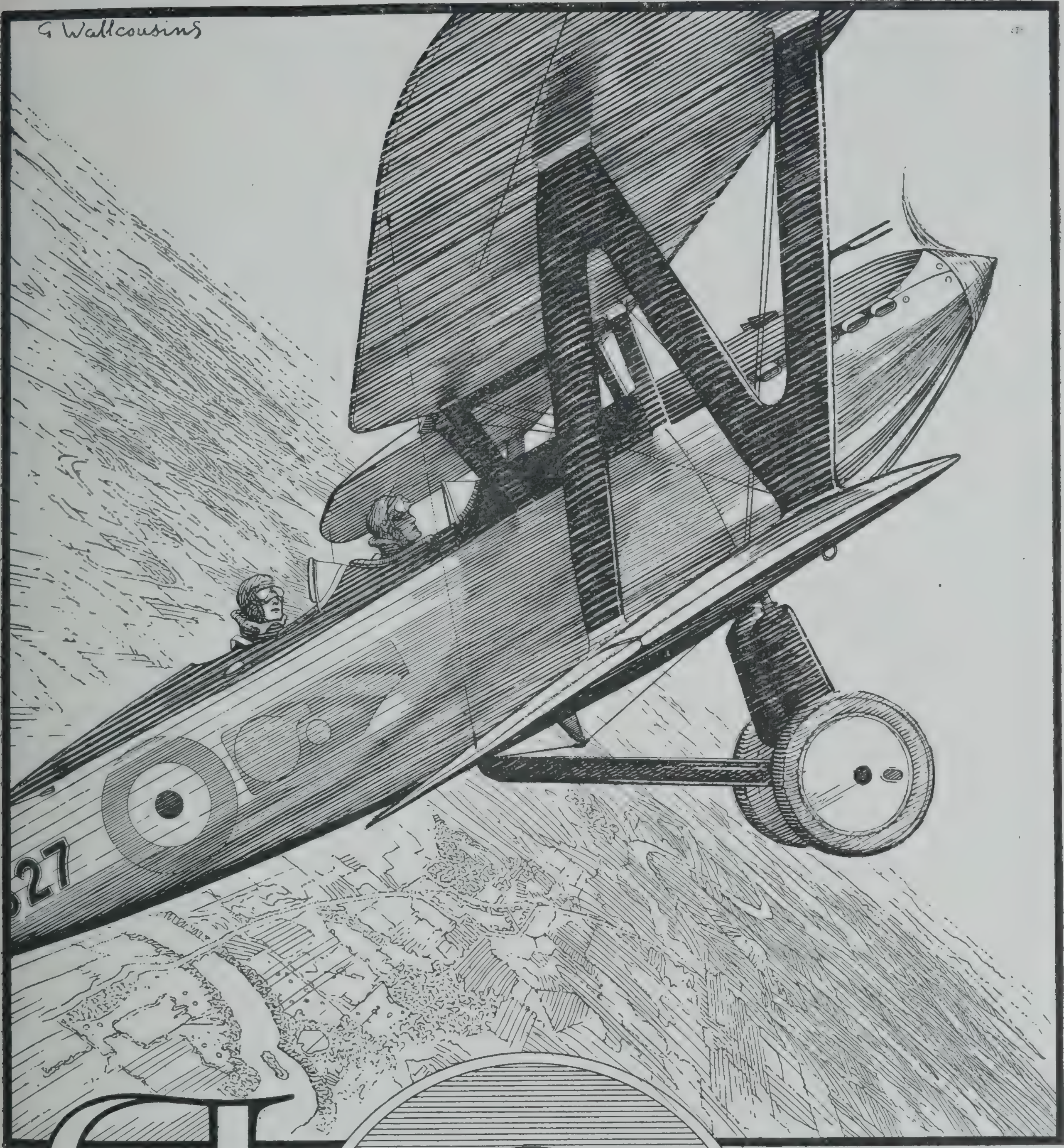
Farman

Société des Avions, H. and M. Farman, Billancourt, Seine.

The Farman 180.

This machine is described as an "*avion de transport de luxe*" and is shown minus wings. It is difficult to believe that the fuselage, centre section and undercarriage in the Grand Palais are anything more than a "mock up." designed to impress potential passengers, though one is assured that the machine is intended seriously and that a real machine of this type is expected to do useful work.

The F.180 is a large biplane which is to weigh 8 tons fully loaded. It has two 500 h.p. Farman engines in tandem in a



Fairey
AIRCRAFT

The FAIREY AVIATION
COMPANY, LIMITED.

Head Office & Works :
HAYES, MIDDLESEX.

nacelle on the top of the centre section some twenty feet above ground level, and it has an undercarriage which appears to have no more than about three inches of travel and a track which may be seven feet wide, but is certainly not more. It is apparently intended to fit wing-tip skids to supplement the rudimentary undercarriage, and it would certainly be amusing to watch the efforts of this machine sideways on to a moderate breeze, to turn upwind.

Whatever one may think of the *avion de transport* aspect of the F.180 the *de luxe* section is well done. The central section of the cabin which is 8 metres (26 ft.) long is occupied by an elaborately equipped American bar and a small electric oven and hot-plate. The bar ought to have been at work and the machine could then certainly have been described as the success of the show.

Ahead of the bar the cabin shown is fitted with sleeping bunks, in the bar section are seats and a settee which would accommodate four or five, and in the section behind are ordinary passenger seats.

Despite this lavish equipment the machine is expected to carry 5½ lbs. of pay load per h.p. to cruise at 100 m.p.h. and to fly on one engine approximately fully loaded It is devoutly to be hoped that these estimates may be fulfilled.

It is, of course, easy enough to make fun of the elaborate arrangements shown for the comfort of passengers in the case of a machine which looks so obviously impossible as an aeroplane, but it would be a thoroughly good thing if a few of the British designers and operators of passenger aircraft could be inoculated with a mild dose of the prevalent Continental concern on this subject. Safety and economy are excellent slogans in their way, but they will not produce large quantities of passenger traffic particularly on long journeys if continuous acute discomfort accompanies them.

WINGS.—Two bay biplane, top wing with large overhang. Normal wooden construction fabric covered.

BODY.—Oval section, monocoque type.

TAIL UNIT.—Normal monoplane type, horn-balanced control surfaces. Rudder by no means large.

UNDERCARRIAGE.—Cross-axle Vee type. Rear member of each Vee vertical with some form of telescopic springing device. Front member takes ground resistance loads in tension, and looks likely to fail if machine were towed from the tail-skid.

POWER UNIT.—Two Farman W type, 500 h.p. in tandem above top centre section, fitted with silencers. No information available as to fuel arrangements and other power plant details.

ACCOMMODATION.—Side-by-side totally enclosed seats for pilot and assistant in nose of fuselage. Wireless cabinet immediately behind cockpit. Cabin already described. Lavatory and luggage compartment behind cabin.

DIMENSIONS.—Span 26 m. (85 ft. 4 in.), Length 18 m. (59 ft.), Height 5.8 m. (19 ft.), Wing area 172 sq. m. (1,825 sq. ft.).

WEIGHTS AND LOADINGS.—Weight empty 4,500 kg. (9,900 lbs.), Crew (3) 200 kg. (440 lbs.), Fuel (for 500 km. = 310 miles) 800 kg. (1,760 lbs.), Pay load 2,500 kg. (5,500 lbs.), Loaded weight 8,000 kg. (17,600 lbs.).

ESTIMATED PERFORMANCE.—Maximum speed 190 km.h. (118 m.p.h.), Cruising speed 160 km.h. (99 m.p.h.), Ceiling, fully loaded 4,000 m. (13,120 ft.).

THE FARMAN 190.

This is quite a neat-looking cabin monoplane of the type made popular by American constructors and now spreading all over the world. It has no points of striking novelty, unless the absence of any provision for bracing the joint between the undercarriage leg and the front lift strut against fore-and-aft loads is to be so accounted.

The machine is nicely finished and should fly excellently.

WINGS.—Strut braced monoplane, uniform chord and section, of normal timber construction, fabric covered. Wing directly on top of body.

FUSELAGE.—Deep rectangular section, spruce framed, three-ply covered.

TAIL UNIT.—Normal monoplane type.

UNDERCARRIAGE.—Split-axle wide-track type. Axles hinged to bottom corners of body, supported by telescopic vertical legs to front lift strut. Joint of leg and lift strut braced by steel tube to top corner of fuselage.

POWER PLANT.—One Bristol or Gnôme-Rhône Titan engine of 230 h.p. Gravity tanks in wing.

ACCOMMODATION.—Pilot in totally-enclosed cockpit below leading edge of wing. Cabin with side entrance seating four below wing.

DIMENSIONS.—Span 14 m. (46 ft.), Length 10 m. (32 ft. 10 in.), Wing area 39 sq. m. (410 sq. ft.).

WEIGHTS AND LOADINGS.—Weight empty 750 kg. (1,650 lbs.), Fuel for 500 km. (310 miles) 300 kg. (660 lbs.), Load (including pilot) 550 kg. (1,210 lbs.), Weight loaded 1,600 kg. (3,520 lbs.), Wing loading 41 kg./sq. m. (8.6 lbs. sq./ft.), Power loading 6.96 kg./h.p. (15.3 lbs./h.p.).

PERFORMANCE.—Maximum speed 185 km.h. (115 m.p.h.), Ceiling 5,000 m. (16,400 ft.).

Fiat.

Societa Anonima Fiat, Turin.

THE FIAT S.R.

This machine was exhibited on the Italian official stand, and, as with other machines on the same stand, there was a total lack of information. It is a single-seater biplane, with rigid strut bracing between wings, in appearance almost exactly like its big bombing brother, the B.R.II.

The machine is fitted with the 500 h.p. Isotta Fraschini engine, and it undoubtedly has a very high top speed. It also lands very fast.

Apart from the Warren truss wing bracing, which is of streamline steel tube, and a wide track, axle-less undercarriage, the machine has no outstanding peculiarity. It is, however, as well made and finished as are all Fiat products.

Focke-Wulf.

Focke-Wulf Flugzeugbau, A.G. Bremen.

This firm show a scale model of their Möwe passenger carrier with the Jupiter engine. This machine was described in THE AEROPLANE of May 30, 1928.

Fokker.

N.V., Nederlandsche Vliegtuigenfabriek, Amsterdam.

THE FOKKER C.V-D.

This two-seater general utility military machine has been manufactured for some considerable time, and the example shown differs little if it all in essentials from others of its type which have previously been described in this paper. It is shown at the Salon in skeleton form, even to the extent of having the ply-wood covering left off considerable areas of the wings, and thus makes obvious the simplicity of Fokker construction, and the real excellence of the workmanship put into it.

There are, of course, still people who doubt the reliability of the Fokker fuselage construction, and to attempt to convince these, there is provided on the stand a large anvil, a hammer, and an assortment of typical welded joints which the sceptic is invited to demolish. No one had succeeded in parting such a joint during the first week of the Salon.

In particular connection with the C.V-D there are to be seen three complete engines on interchangeable mounts, and these three engines are taking turns in the machine itself at regular intervals, so that the real interchangeability of different engines shall be put beyond doubt. The engines at the Salon are the 450 h.p. "W" Lorraine-Dietrich, the 500 h.p. type 51 "Vee" Hispano, and the 450 h.p. Jupiter.

Interchangeable wings may also be fitted, of larger surface to turn this into the C.V-E to carry a larger load or for longer range.

WINGS.—Cantilever biplane with lower wing of smaller chord and span than upper. One Vee interplane strut between upper and lower wing. Spruce and three-ply box-spars, three-ply ribs and three-ply covering. Ailerons on top wing only.

FUSELAGE.—Fokker welded tube construction. Rectangular section.

TAIL UNIT.—Normal monoplane type, welded tube frame, fabric covered. Tail plane strut braced from fuselage. Balanced rudder, adjustable tail plane.

UNDERCARRIAGE.—Cross-axle Vee type. Front leg of each Vee is a double tube and the axle is slung on rubber between the two tubes. Steerable tail-skid with renewable shoe.

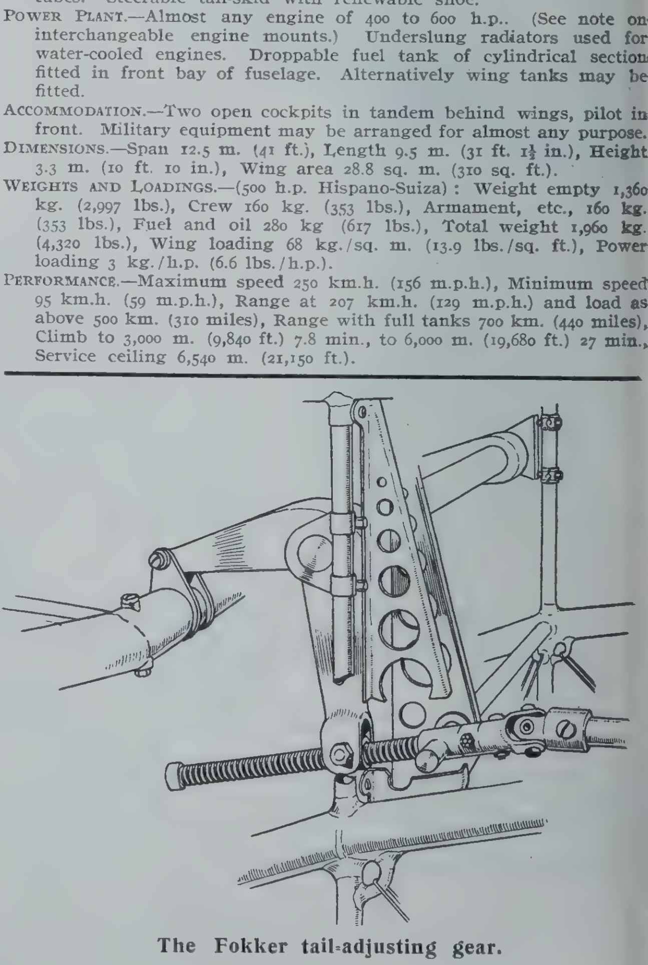
POWER PLANT.—Almost any engine of 400 to 600 h.p.. (See note on interchangeable engine mounts.) Underslung radiators used for water-cooled engines. Droppable fuel tank of cylindrical section fitted in front bay of fuselage. Alternatively wing tanks may be fitted.

ACCOMMODATION.—Two open cockpits in tandem behind wings, pilot in front. Military equipment may be arranged for almost any purpose.

DIMENSIONS.—Span 12.5 m. (41 ft.), Length 9.5 m. (31 ft. 1½ in.), Height 3.3 m. (10 ft. 10 in.), Wing area 28.8 sq. m. (310 sq. ft.).

WEIGHTS AND LOADINGS.—(500 h.p. Hispano-Suiza): Weight empty 1,360 kg. (2,997 lbs.), Crew 160 kg. (353 lbs.), Armament, etc., 160 kg. (353 lbs.), Fuel and oil 280 kg (617 lbs.), Total weight 1,960 kg. (4,320 lbs.), Wing loading 68 kg./sq. m. (13.9 lbs./sq. ft.), Power loading 3 kg./h.p. (6.6 lbs./h.p.).

PERFORMANCE.—Maximum speed 250 km.h. (156 m.p.h.), Minimum speed 95 km.h. (59 m.p.h.), Range at 207 km.h. (129 m.p.h.) and load as above 500 km. (310 miles), Range with full tanks 700 km. (440 miles), Climb to 3,000 m. (9,840 ft.) 7.8 min., to 6,000 m. (19,680 ft.) 27 min., Service ceiling 6,540 m. (21,150 ft.).



The Fokker tail-adjusting gear.

The Fokker C.VIII.

This is a three-seater long-range reconnaissance machine to Dutch military requirements, and with the exception of the well-known Fokker Universal, which it closely resembles in lay-out, it is the first braced monoplane built by Fokkers for many years. Standard Fokker practice is used throughout the construction, and the machine is decidedly businesslike in appearance.

Wings.—Single piece monoplane, strut braced. Box spars, three-ply ribs, three-ply covering.

Fuselage.—Rectangular, welded steel tube construction.

Tail Unit.—Normal monoplane type, welded steel frame, fabric covered. Adjustable tail plane, unbalanced control surfaces.

Undercarriage.—Wide track split-axle type. Shock absorber legs run to front lift strut, and joint braced upwards to top and forwards to bottom of fuselage.

Power Plant.—Hispano-Suiza type 12 LB 600 h.p. Underslung retractable radiator. Bullet-proof fuel tank in fuselage. Alternative engines may be fitted by changing the engine mount.

Accommodation.—Pilot in open cockpit below leading edge. Open cockpit for observer below trailing edge, with internal accommodation for wireless operating, use of camera, etc. There is room below the petrol tank for this observer's legs in a prone position using a bottom gun for tail defence. Behind is a rear gunner's position with Scarff-ring.

Dimensions.—Span 14.03 m. (46 ft. 2 in.), Length 11.15 m. (36 ft. 7 in.), Height 3.15 m. (10 ft. 4 in.), Wing area 35 sq. m. (377 sq. ft.).

Weights and Loadings.—Weight empty 1,550 kg. (3,416 lbs.), Crew (3) 270 kg. (595 lbs.), Fuel and oil 345 kg. (760 lbs.), Armament, etc., 235 kg. (519 lbs.), Loaded weight 2,400 kg. (5,290 lbs.), Wing loading 68 kg./sq. m. (139 lbs./sq. ft.), Power loading 3.6 kg./h.p. (7.9 lbs./h.p.).

Performance.—Maximum speed 228 km.h. (142 m.p.h.), Minimum speed 100 km.h. (62 m.p.h.), Climb to 2,000 m. (6,560 ft.) 6.35 min., to 5,000 m. (16,400 ft.) 25½ min., Service ceiling 5,800 m. (19,050 ft.), Range at 187 km.h. (116 m.p.h.) 650 km. (410 miles.).

Hanriot.

Avions R. Hanriot, 2, Route de Bézons, Carrières-sur-Seine.

The Hanriot 431

This is a two-seater advanced training machine shown in skeleton form to exhibit the metal construction. So far as the fuselage is concerned there is little to remark. Square duralumin tubes are used and flat plate joints not unlike those used by the Hawker Co. in England make a simple and sound assembly.

The wing spars are rectangular duralumin tubes, drilled full of holes as is customary in France. The ribs are of ordinary three-ply and spruce type with a very elementary method of attachment. A strip of spruce about 5-16 in. x ¼ in. is laid on top and bottom of the spar between each rib. The ends of this strip are halved to pass below the rib flanges, and butt against the similarly halved end of the next strip. Two brass brads are then driven through each rib flange one into each of the strip-ends. The brads project through lightening holes into the interior of the spars proper and inflicted a painful wound on the finger of one earnest enquirer into the details of the machine.

Wings.—Equal-winged biplane with one I strut of dural. plate per side. Duralumin tube spars, wooden ribs.

Fuselage.—Rectangular section, of square duralumin tube, wire-braced.

Tail Unit.—Normal monoplane type, duralumin framed. Control surfaces unbalanced.

Power Plant.—One Salmson 9A.B. (air-cooled) 230 h.p.

Accommodation.—Two open cockpits in tandem with dual control.

No data as to dimensions or performance available.

The Hanriot Styx.

This machine is officially described as an "*avion estafette*," or in other words "express messenger" type. The French official specification for this type requires that it shall be suitable also for the preliminary training of pilots, and for transporting a wounded man on a stretcher.

It is further required to be easy to fly and land, of robust construction, simple to maintain, and to have an engine of 100 h.p.

The name given to this particular effort to meet the specification suggests some doubt on the part of the inventor as to whether the machine will satisfactorily meet the designed end. It might almost be more aptly termed "*avion de transition*," for it seems likely to ensure a rapid crossing of the river after which it is named.

The fuselage is of rectangular section and is built of square duralumin tubes on very much the same lines as the type 431. Behind the wing over a length of at least six feet one side of the fuselage is entirely unbraced. This section is closed by a door hinged at the top longeron which when closed is held to the bottom longeron by three or four spring clips. It seems to be believed that this door when in place will serve as an effective bracing. There is in the length covered by this open bay a large cockpit opening, and in the bay ahead of it there is another cockpit with a side entrance door.

As the machine is a cantilever monoplane with a wing supported entirely from the top rail of the fuselage the wing structure cannot in any way serve as an external bracing to the fuselage, and this multiplicity of unbraced bays starts at the main undercarriage attachment and extends about halfway to the tail.

The fuselage is entirely covered in aluminium sheets with widely spaced stiffening corrugations rolled into them. These covers are in small sections, and are held on by multitudes of small screws with milled nuts. The fixing is not such as to warrant any reliance on the covering as a stress carrying member. The sole object of the arrangement is accessibility.

The sight of a French mechanic searching for minute milled nuts after a field repair that called for the removal of one or two of these plates should provide endless entertainment to those in the neighbourhood.

It is quite impossible to take this aircraft seriously.

Heinkel.

Ernst Heinkel Flugzeugwerke, Warnemünde.

The Heinkel exhibit consists of a float seaplane of the same type as that which won the German seaplane competition in 1926. The competition machine was fitted with a Napier Lion engine, whereas one of the new B.M.W.VI engines is in the machine at Paris.

Wing.—Strut-braced low-wing monoplane "*formule Brandenburg.*" Wooden construction with steel tube N struts from float unde carriage. This machine is one of the few at Paris that ha ailerons of satisfying size.

Fuselage.—Rectangular section, very considerably "cocked-up" towards the tail. Wooden construction.

Tail Unit.—Normal monoplane type.

Undercarriage.—Twin box-type floats of very wide beam and mainly three-ply construction. Supported on two pairs of N struts from fuselage and two spreader bars.

Power Plant.—One B.M.W.VI water-cooled Vee engine 500/700 h.p.

Accommodation.—Three open cockpits in tandem.

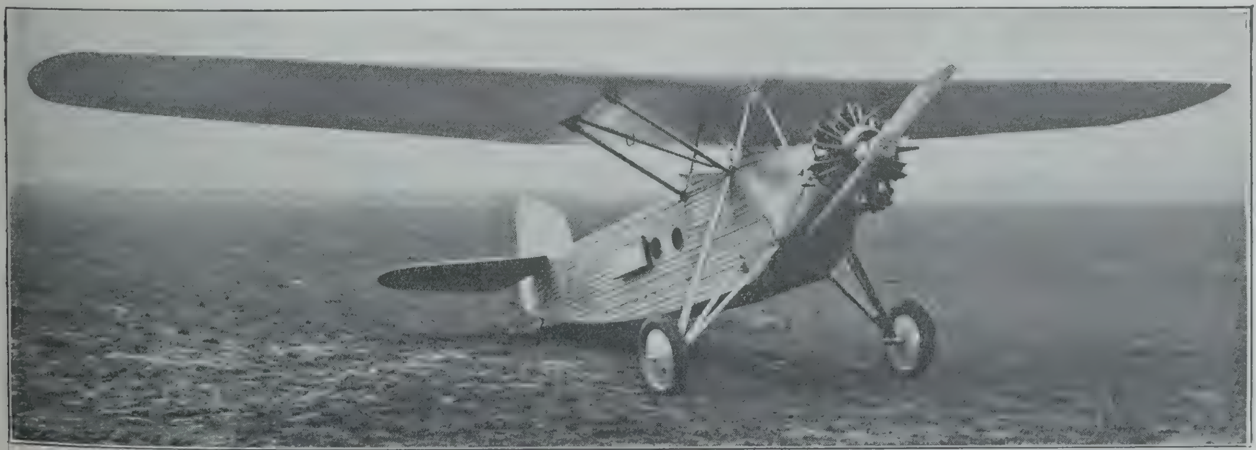
Weights.—Empty 2,005 kg. (4,411 lbs.), Loaded 2,905 kg. (6,391 lbs.), Power loading 5.8 kg./h.p. (12.8 lbs./h.p.).

Performance.—Speed 230 km.h. (143 m.p.h.), Climb to 3,000 m. (9,840 ft.) 12.6 min., Landing speed 88 km.h. (55 m.p.h.).

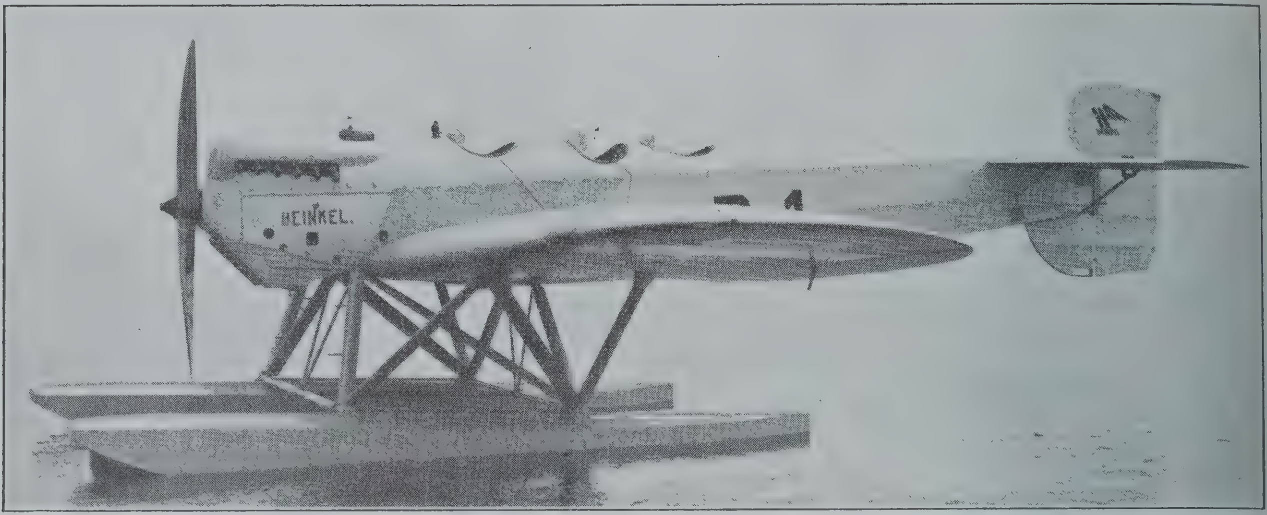
Junkers.

Junkers Flugzeugwerke A.G., Dessau.

The Junkers exhibit is a machine of the W.33 type, with equipment similar to that fitted to the Bremen for the first successful East—West crossing of the North Atlantic. Photographs and descriptions of this equipment were reproduced



THE HANRIOT STYX.—An all-metal monoplane fitted with a Salmson engine, which can be used as a two-seat touring or training machine or an "Avion Sanitaire."



THE HEINKEL HE.5.—A three-seat general-service seaplane fitted with the 500 h.p. B.M.W.VI engine.

in The Aeroplane of April 18, and that description applies with complete accuracy to the machine shown.

The W.33 is a freight and baggage carrier. The space normally occupied by a passenger cabin is open for goods. In the Bremen a narrow gangway was left from the pilot's cockpit aft and on each side a tank of 1,100 litres (500 gallons) was installed. At the aft end of the gangway a hammock was slung. Otherwise the machine is perfectly standard.

The general constructional features of Junkers machines are too well known to need recapitulation. The dimensions and so forth of the W.33 type are :—

Dimensions.—Span 17.75 m. (58 ft. 3 in.), Length 10.5 m. (34 ft. 5 in.), Height 3.5 m. (11 ft. 6 in.), Wing area 43 sq. m. (462 sq. ft.)

Weights and Loadings.—Weight empty 1,420 kg. (3,124 lbs.), Weight loaded 2,500 kg. (5,500 lbs.), Wing loading 58 kg./sq. m. (13 lbs./sq. ft., Power loading 8.5 kg./h.p. (18.7 lbs./h.p.).

(The fully-loaded weight of the Bremen at the start from Baldonnel was 3,700 kg. or 8,140 lbs.)

Performance.—Maximum speed 187 km.h. (116 m.p.h.), Ceiling 4,300 m. (14,100 ft.).

Klemm-Daimler.

Leichtflugzeugbau Klemm, Sindelfingen, Wurtemburg.

This firm exhibit one of their well known two-seater light monoplanes with the two-cylinder 20 h.p. Mercedes engine with reduction gear.

This machine is by now so well known that further description is barely necessary beyond saying that it is a low-wing cantilever monoplane, wooden-framed and three-ply covered, with tandem dual control seating.

Despite its low power it has a distinctly useful performance and has many notable flights to its credit.

The machine is well made in all essentials, but is very crudely finished in respect to minor detail.

Performance.—Maximum speed 120 km.h. (75 m.p.h., Landing speed 45 km.h. (28 m.p.h.). Climb to 1,000 m. (3,280 ft.) 8 mins., Ceiling 6,500 m. (21,300 ft.).

Levasseur.

P. Levasseur, 17-21, Place Felix Faure, Paris

This firm show their latest torpedo or bomb carrier for naval service. Like previous machines of this make a very large fuselage, built much as the hull of a flying-boat is made, and fitted with a Vee bottom, is used to give flotation in the event of forced landing at sea. To further this en the undercarriage may be dropped, and wing tip floats ar provided.

The machine is a three-seater, very large and rather ugl but well made, and it is difficult to see how a much bette job could be made to meet the very complex requirements the French navy.

Wings.—Single-bay biplane. Bottom wing of less span than top. Ove hang of top plane may be folded down, and the whole wing stru ture folded in the usual way. Wooden spars and ribs, steel fitting fabric-covered.

Fuselage.—Timber framed, three-ply covered with Vee bottom but step.

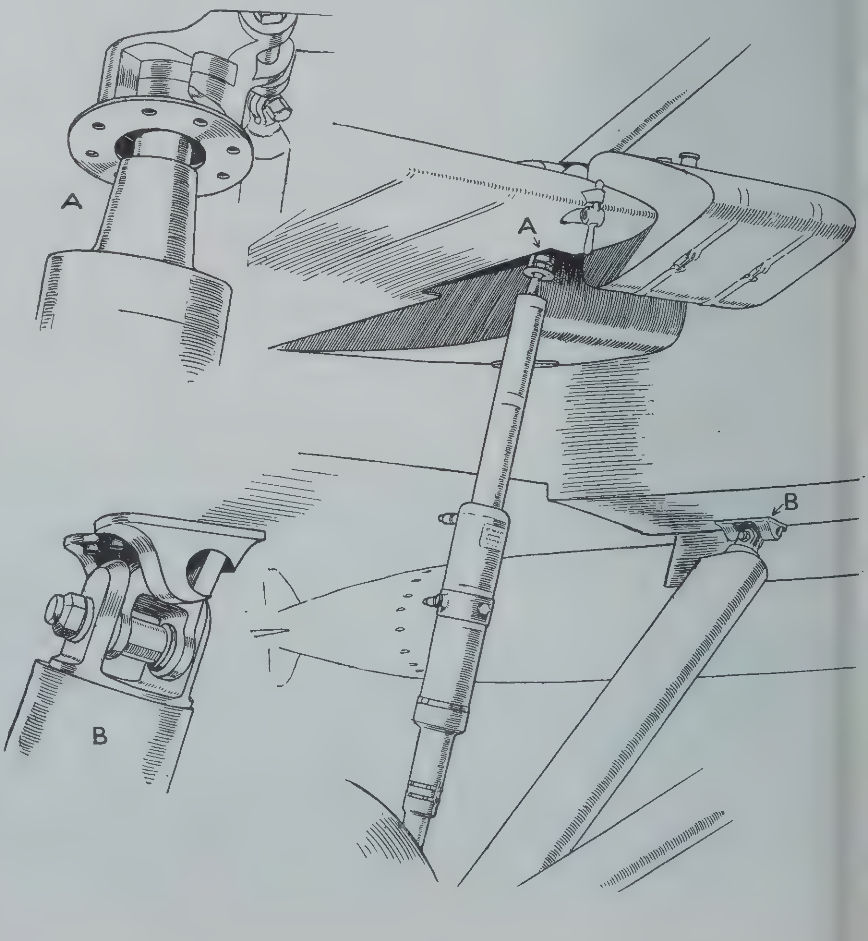
Tail Unit.—Normal monoplane type. Steel tube frame, fabric-covere

Undercarriage.—Split-axle type, with compression rubber springin May be dropped from pilot's seat for landing in water.

Power Plant.—One 580 h.p. Renault engine with reduction gea Lamblin radiators on bottom centre section struts.

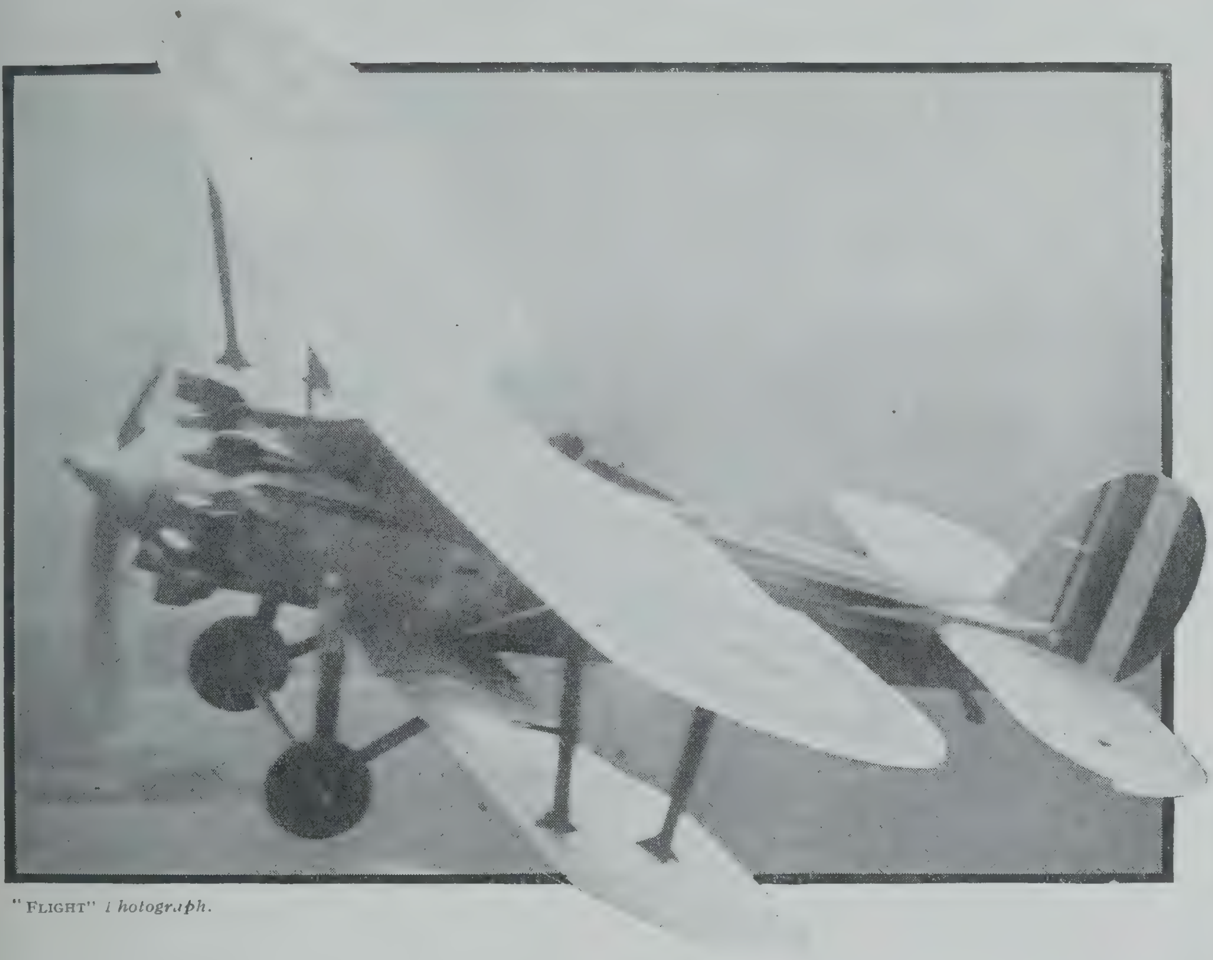
Accommodation.—Three tandem cockpits. Pilot in front with torped release gear. Observer wireless operator who can also contr torpedo next. Rear gunner aft.

Dimensions.—Span (top) 18.0 m. (59 ft.), Span (bottom) 13.6 m. (44 8 in.), Width wings folded 5.85 m. (19 ft. 4 in.), Length 11.68 (38 ft. 9 in.), Height 4.9 m. (16 ft. 1 in.), Wing area 77.5 sq. (835 sq. ft.).



The Levasseur dropping undercarriage on the torpedo-carrier, which when released permits the machine to alight on water.

"Bristol"



"Flight" Photograph.

The "Bristol" Single-Seater Fighter, a machine of exceptionally high performance embodying the latest "Bristol" practice in steel construction, will be exhibited on the "Bristol" Stand at the Paris Aero Exhibition, June 29th to July 15th, 1928.

"The Times," 30th June, 1928:

" . . . . a single seater fighter shown by the Bristol Aeroplane Company . . . very considerably surpasses any other in the show in performance, ingenuity of design, workmanship and equipment . . ."

Full details will be available on the "Bristol" Stands regarding all types of "Bristol" Aeroplanes and "Bristol" Aero Engines. If you are unable to attend the Exhibition personally, write for full particulars to

THE BRISTOL AEROPLANE CO., LTD.,
FILTON — BRISTOL.

Telegrams: "Aviation, Bristol."

Telephone: 3905 Bristol.

Weights.—Useful load 1,000 kg. (2,200 lbs.), Weight fully loaded 3,650 kg. (8,030 lbs.), Wing loading 47 kg./sq. m. (9.6 lbs./sq. ft.), Power loading 6.3 kg./h.p. (13.9 lbs./h.p.).

Performance.—No information obtainable.

Liore et Olivier.

Loiré et Olivier, 6-16, Rue de Villiers, Levallois-Perret.

The LeO.20.

This is a large twin-engined bomber, entirely built of duralumin except for the covering, and shown uncovered and with the wings detached and erected wing-root to wing-root, to make a kind of Eiffel Tower in the centre of the Grand Palais. The machine has most of its military equipment in place, and it is always interesting to observe the ingenuity normally displayed in stowing the very complex gear carried on these large French machines, and very particularly to contrast the real skill often shown in this respect with the remarkably off-hand improvisation in regard to essential details of the aeroplane and its control.

This particular machine is rather a typical case of uneven quality in design and layout. Just behind the pilot's cockpit is an impenetrable mass of bomb-gears, tanks and other impedimenta. To get the controls for the tail past this, a really nicely designed control gear is coupled up by wires to a series of lay-shafts, and all control wires are thus brought to the top of the fuselage.

Though a twin-engined job, the machine has but one central rudder and that not enormously large. To allow for uneven engine thrust, etc., the fin is arranged to turn, and this is effected through a substantial worm-gear cable operated from the seat.

Throughout the fuselage solid wire bracing is used, but it is particularly pointed out that these are not piano wires, but have jumped-up conical heads, so that the usual trouble with piano-wire loop ends is avoided.

Yet the wires from the rudder-bar to the rudder lay-shaft are ordinary piano-wires of about 14 gauge, and the whole of the engine control connections are made by using an immense amount of 20 gauge wire to couple-up enormous numbers of small bell-cranks. There must be at least one hundred short lengths of such wire, each with a turnbuckle between the engine control levers and each engine, and how on earth they can be expected to stay in correct adjustment heaven alone knows.

This particular machine is really terrifying in this respect. In general layout it is quite reasonable, it is clean, and it has quite a good performance. Much ingenuity has been spent on many of its details, many others of primary importance seem just to have happened, and are certainly not calculated to inspire confidence in British minds.

Wings.—Equal-winged unstaggered biplane, three rows of struts per side. Spars rectangular duralumin tubes full of lightening holes. Ribs of trough section duralumin, Warren girder type. Dural. tube drag struts and solid wire drag bracing. Usual small chord ailerons.

Fuselage.—Rectangular section, of square dural. tube throughout and simple plate fittings. Most of the strut tubes have large numbers of small holes drilled through them for no apparent reason.

Tail Unit.—Normal monoplane type, except that fin is hinged to the stern post like a normal balanced rudder, and may be set over to trim. The rudder is then hinged to the fin trailing edge. Tail plane is adjustable in the air. All tail spars are tubes, rectangular for the tail plane. Ribs are pressed from sheet duralumin.

Undercarriage.—One wheel (below each engine) is slung between two built-up duralumin boxes attached to the front and rear wing spars. The axle of the wheel works in horn-blocks on rubber cord. The whole undercarriage, except lower third of wheels enclosed in a sheet metal trouser.

Power Plant.—Two Gnôme-Rhône Jupiter engines on detachable mounts carried from lower centre section. Oil tanks in engine nacelles. Large bullet-proof fuel tank, droppable, in fuselage behind pilot.

Accommodation and Equipment.—Bomber in nose of fuselage with Scarff ring. Pilots' seats with dual control (accessible to bomber). Rear gunner wireless operator well behind wings. This seat is provided with a lift, consisting of a duralumin cage like a small bath, in which the gunner sits. This runs on four tube guides and is balanced by the pull of rubber cords stretching to the tail and back over pulleys. In the top position of this lift the occupant fights the top gun. At the bottom position the bath projects through the bottom of the fuselage and a tail defence gun can be used. Intermediately the wireless gear is accessible. Internal racks for 10 medium bombs are carried behind pilot. Racks for 7 large bombs below fuselage and lower centre section. Wireless, camera, and sundry other equipment provided.

Dimensions.—Span 22.2 m. (73 ft. 8 in.), Length 13.77 m. (45 ft. 2 in.), Height 4.26 m. (14 ft. 0 in.), Wing area 105 sq. m. (1,130 sq. ft.).

Weights and Loadings.—Weight empty 2,580 kg. (5,676 lbs.), Normal loaded weight 5,060 kg. (11,132 lbs.), Maximum permissible load 5,600 kg. (12,320 lbs.), Wing loading 48.2 kg./sq.m. (9.86 lbs./sq. ft.), Power loading 6.02 kg./h.p. (13.6 lbs./h.p.).

Performance.—Maximum speed 196 km.h. (122 m.p.h.), Speed at 3,000 m. (9,840 ft.) 189 km.h. (117 m.p.h.), Climb to 3,000 m. (9,840 ft.) 18.6 min., Absolute ceiling 5,750 m. (18,800 ft.).

The LeO. H180.

This machine, of very simple design, is a little flying boat designed for shipboard use and for seaplane training It is not new, and seems more likely to appeal to sporti private owners than to any naval service.

Wing.—Single-piece wooden cantilever monoplane mounted direct on top of hull.

Hull.—Wide-beamed, flat-bottomed three-ply box with one deep ste Wing-tip floats of duralumin carried on struts well below wi and fairly close in.

Tail Unit.—Normal monoplane type. Tail plane carried high abo hull by fin and braced to hull by diagonal tubes.

Power Plant.—One Salmson 9A.C. (air-cooled) engine 120 h.p. carri in a streamline egg on struts above wings. Shaft drive throu flexible couplings to a pusher airscrew over trailing edge. Fu in tanks in wings, pump-fed to carburettor.

Accommodation.—Two side-by-side seats in enclosed cockpit bel leading edge.

Dimensions.—Span 11.2 m. (36 ft. 8 in.), Length 7.25 m. (24 ft. 7 in Height 2.7 m. (8 ft. 10 in.), Wing area 17.2 sq. m. (185 sq. ft.).

Weights and Loadings.—Weight empty 680 kg. (1,495 lbs.), Weig loaded 960 kg. (2,112 lbs.), Wing loading 55.8 kg./sq. m. (1 lbs./sq. ft.), Power loading 8 kg./h.p. (17.6 lbs./h.p.).

Performance.—Maximum speed 170 km.h. (106 m.p.h.), Climb to 2, m. (6,560 ft.), 18 mins. Ceiling 3,500 m. (11,500 ft.).

Macchi.

On the stand of the *Ministero Aeronautica* of Italy shown the Macchi M.52 racing seaplane, which at prese holds the world's speed record and took part in t last race for the Schneider Trophy. It is a singularly ni looking machine, except that the lines of the rear end the fuselage are a little devoid of grace. As no informati that has not already frequently been published could obtained concerning it there is little to be said on t subject.

Morane-Saulnier.

Société Anonyme des Constructions Aéronautiques Mora Saulnier, Rue Volta, Pateaux, Seine.

The Morane 149.

This is the famous Morane parasol monoplane with pia wire wing bracing that seems to have remained unalter since about 1914. During one's stay in Paris the opp tunity of seeing one of these machines handled by a g pilot occurred, and it was possible to understand the reas for its continued existence. It is certainly one of the fin acrobatic machines in existence, and one is further assu that it is one of the most stable and easiest to fly of traini machines.

The present specimen is fitted with the new Lorraine fi cylinder air-cooled radial of 100 h.p., instead of the us rotary, but otherwise calls for no comment.

The Morane 130.

This again is a well-known type of advanced training chine. It has a thick wing, strut-braced to about half-w out along the span, and may be fitted with almost engine of about 200 h.p., including the 180 h.p. Hispa Suiza. The machine at the Salon has the 230 h.p. Salm A.B9 radial, and thus equipped may be used for photograp survey, or even for military service against ill-equip enemies.

This, like nearly all Morane products, is a sound, straig forward job, and though no details of performances available, it should be fast and climb well.

The Morane 121.

A single-seat fighter, also of the parasol monoplane ty strut-braced, and entirely of duralumin. The engine i 400 h.p. Hispano-Suiza. Being a new military type, secrecy being apparently acute in France at the moment, information as to details are available.

The machine looks very like many other Morane machi externally, and it is unfortunate that no opportunity given to visitors to the show to see what sort of a Morane makes of duralumin construction. Judging by cedent, it should be above the average.

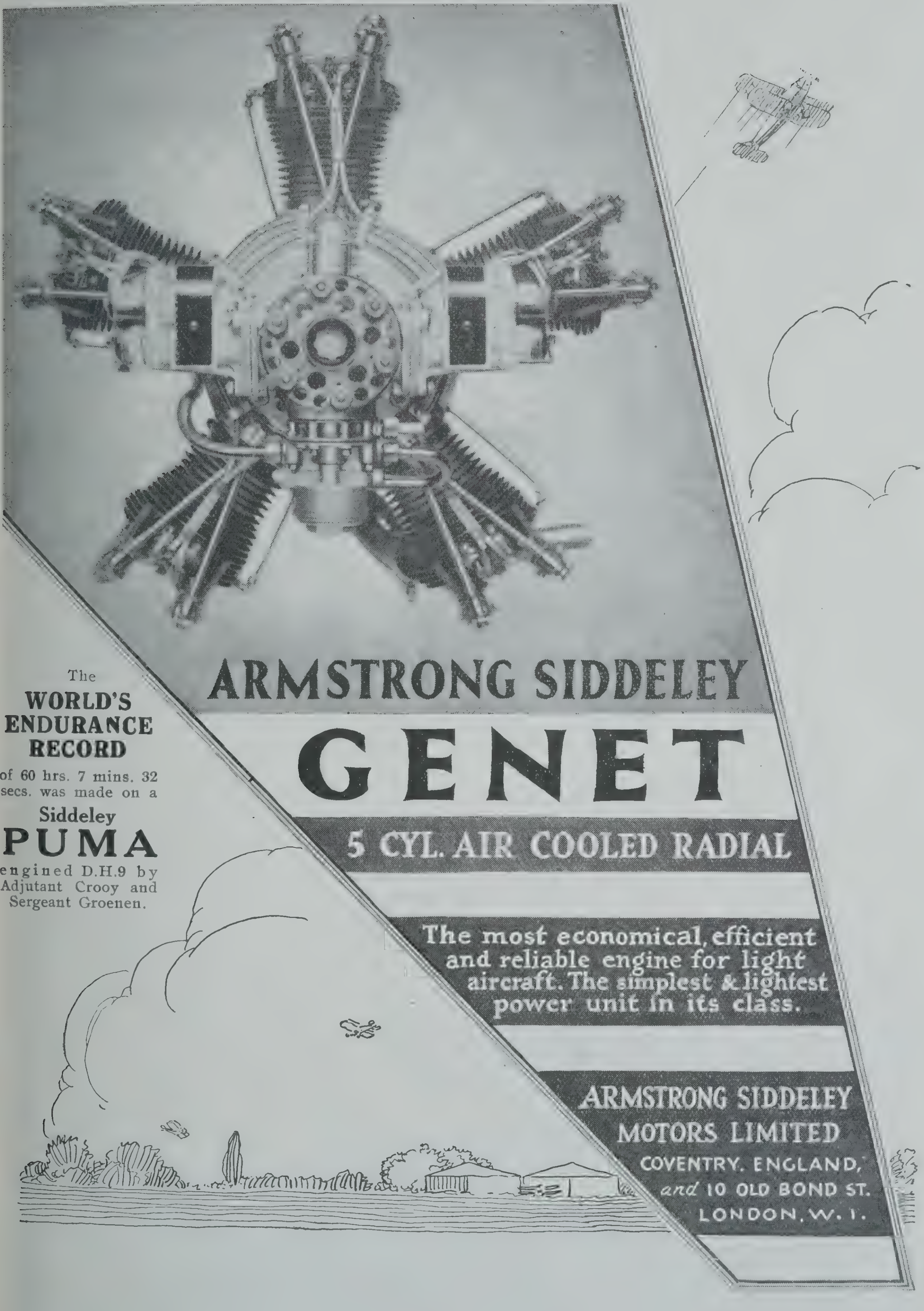
Mureaux.

Ateliers des Mureaux, 49bis, Avenue Hoche, Paris.

The M.B. Ship Plane.

This is a little float monoplane, designed to pack int small cylindrical case 7 m. (23 ft.) long by 2 m. (6 ft. 7 diameter, for stowage on board a submarine or other s seacraft. The original design was due to Marcel Besson, the machine is now being built by the Mureaux works.

The machine is a strut-braced low-wing monoplane, wit very thick section wing, carried on a pair of box-type fl and a very complicated system of struts to the under riage, all with quickly detachable fittings.



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Siddeley
PUMA
engined D.H.9 by Adjutant Crooy and Sergeant Groenen.

with Potez machines, and it has an undercarriage with reasonable shock-absorbing qualities, which is unusual in France.

WINGS.—Strut braced high wing monoplane. Uniform chord and section. Wooden frame, fabric covered, fixed direct to top cabin.

FUSELAGE.—Spruce frame, three-ply covered. Rectangular section.

TAIL UNIT.—Normal type, balanced rudder and elevator, adjustable tail plane.

UNDERCARRIAGE.—Normal Vee type, with divided axle hinged to cabane below fuselage. Compression rubber shock absorber in front legs of Vees.

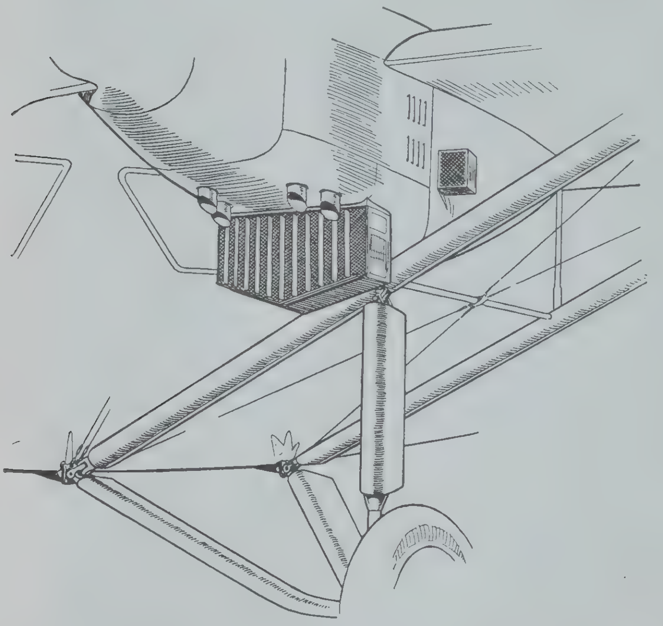
POWER PLANT.—Salmson A B 9 230 h.p., Lorraine 7-cylinder 230 h,p.. Wright Whirlwind, or other radial air-cooled engine of appropriate power. Fuel tanks (droppable) apparently in wings.

ACCOMMODATION.—Side-by-side seats with dual control totally enclosed under leading edge. Spacious cabin with two staggered rows of two seats each. Baggage space ahead of pilot, lavatory behind cabin. Large side entrance door.

DIMENSIONS.—Span 14.5 m. (47 ft. 8 in.), Length 10.15 m. (33 ft. 3 in.), Height 4.0 m. (13 ft. 1½ in.), Wing area 35 sq. m. (376 sq. ft.).

WEIGHTS AND LOADINGS.—Power Plant 430 kg. (946 lbs.), Aeroplane structure 520 kg. (1,144 lbs.), Empty weight with equipment 1,050 kg. (2,310 lbs.), Fuel 200 kg. (440 lbs.), Disposable load, including crew but not fuel, 500 kg. (1,100 lbs.), Loaded weight 1,750 kg. (3,850 lbs.), Wing loading 50 kg./sq. m. (10.3 lbs./sq. ft.), Power loading 7 kg./h.p. (15.4 lbs./h.p.).

PERFORMANCE.—Maximum speed 190 km.h. (118 m.p h.), Ceiling 4,500 m. (14,750 ft.), Range 800 km. (500 miles.)



One half of the undercarriage of the Potez 35.

THE POTEZ 35.

The main exhibit on this stand is a monoplane bomber known as the Potez 35, fitted with two ungeared 450 h.p. Lorraine engines. Being a new military type no data were obtainable except such as could be obtained by observation.

WING.—Strut braced high wing monoplane. Fabric covered and probably normal timber construction. Bracing struts from bottom of fuselage to wing via engine nacelles.

FUSELAGE.—Rectangular section, timber frame, three-ply covered.

TAIL UNIT.—Normal monoplane type, apparently steel tube framed. Balanced rudder which appears to be interchangeable with that of the much smaller single-engined Potez 32, which is no more than adequately ruddered. (It seems to be considered almost unnecessary to have rudders on twin-engined machines in France. Presumably tmey can be steered on their engines.

UNDERCARRIAGE.—Axles hinged to fuselage and supported by a telescopic leg running to front lift strut under engine nacelles. Rubber compression and oleo shock absorbing with a reasonable travel.

POWER PLANT.—Two Lorraine W type 450 h.p. engines in nacelles below wings and above undercarriage legs.

ACCOMMODATION.—Bomber observer in nose of fuselage. Two pilots' seats in tandem behind observer with a gangway past them on starboard side. Internal bomb racks for ten medium bombs, wireless, camera, etc., behind pilots. Rear gunner's cockpit behind wing. There is a sort of duralumin basket below the bottom of the fuselage in which the rear gunner may lie to use a tail defence gun.

DIMENSIONS, WEIGHTS AND PERFORMANCES.—Not available.

Rohrbach.

Rohrbach Metall-Flugzeugbau G.m.b.H., Berlin.

Dr. Rohrbach shows only one section of the central portion of an all-duralumin wing, and the side float from one of the smaller of the Rohrbach seaplanes.

The Rohrbach type of wing consists of a central box, whose front and rear edges are built up I-section girders corresponding more or less to the usual front and rear spars. These are tied together by flat-sheet formers, which serve as ribs, and the whole is covered with sheet duralumin.

Removable leading and trailing edge sections—not shown—are attached to the box.

The side float is a perfectly ordinary piece of float-building.

Savoia.

Also on the stand of the Italian *Ministero Aeronautica* there is shown a specimen of the Savoia S.55, used by the Marquis de Pinedo on his American tour and on many other famous flights. This curious twin-hulled, tail-boomed, tandem-engined flying-boat, with its vast cantilever monoplane wing, is decidedly an interesting machine.

It does not look well, it is difficult to believe that it can be nice to handle in anything of a seaway, but there is conclusive evidence that it flies well. It was only possible to obtain exterior views of it at Paris, and no information as to its characteristics could be found on the stand. As it has often been described previously this reticence is not very important.

Schreck.

Hydravions Schreck F.B.A., Quai de Seine, Argenteuil, Seine-et-Oise.

THE SCHRECK 21.

This machine is a single-engined flying-boat, of characteristic F.B.A. type equipped for mail or goods carrying. It is a perfectly normal biplane, with a 450 h.p. Lorraine W. type engine in a nacelle close to the top wing, driving a tractor airscrew.

The hull is a three-ply box, with a wide, nearly flat bottom and a single step well aft the C.G. Two side-by-side seats with dual control are ahead of the wing, with behind a large empty compartment for freight.

DIMENSIONS.—Span 15.4 m. (50 ft. 7 in.), Length 10.6 m. (34 ft. 9 in.), Height 4.2 m. (13 ft. 8 in.), Wing area 53.25 sq. m. (572 sq. ft.).

WEIGHTS AND LOADINGS.—Weight empty 1,985 kg. (4,370 lbs.), Fuel and oil 350 kg. (770 lbs.), Load 450 kg. (990 lbs.), Fully loaded 2,785 kg. (6,140 lbs.), Wing loading 52.2 kg./sq. m. (10.7 lbs./sq. ft.), Power loading 6.2 kg./h.p. (13.6 lbs./h.p.).

PERFORMANCE.—Maximum speed 190 km.h. (118 m.p.h.), Landing speed 96 km.h. (60 m.p.h.), Ceiling 4,400 m. (14,400 ft.).

S.E.C.M.

Société d'Emboutissage et de Constructions Mécaniques, 177, Boulevard du Havre, Colombes, Seine.

The products of this firm, originally known as S.E.C.M. types, are now named after the company's chief designer, M. Amiot.

The firm shows a large, very ugly, single-engined bomber with a 650 h.p. eighteen-cylinder W type Lorraine engine, which, being a new military machine, is exposed to view freely, but for which numerical data were not available.

The machine is of biplane type, bottom wing smaller than top, has a single row of interplane struts, and a heavy back stagger. The fuselage—a two-storey affair, with upper and lower positions for the rear gunner, is entirely of round duralumin tubes, with the S.E.C.M. type split fittings stamped from sheet duralumin, or occasionally steel. There are racks for bombs all over the machine, and a slot 10 ft. long by one ft. wide in the bottom of the body. Whether this is for bomb-sighting from the rear seat, or merely for downward defence, or both, is not clear. The wing construction is all duralumin, but is not revealed.

The same firm show a "Jockey" type fighter. This is a high wing, strut-braced monoplane, with what look like absurdly small stub wings in the bottom of the fuselage, but are actually petrol tanks.

The undercarriage is of the split-axle type, very narrow with an absurdly small bracing angle between the legs and the bracing struts, and about two inches of travel to the wheels, provided inside the hubs.

No data are available for this machine, as it is also secret.

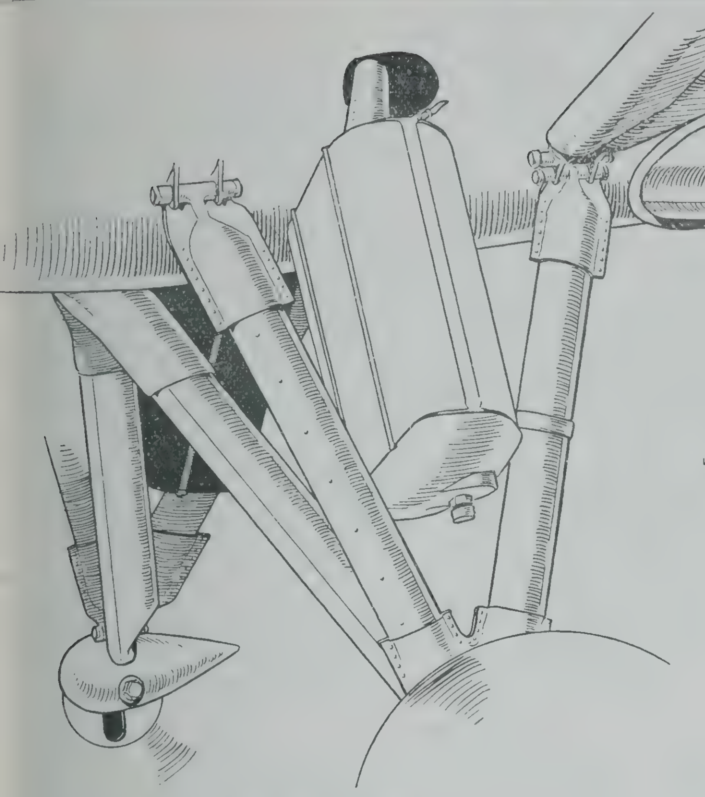
Wibault.

Société Anonyme des Avions Michel Wibault.

M. Wibault has on his stand an example of his latest single-seat fighter—of the Jockey class—and of a very similar high-performance two-seat fighter.

Both machines are high-wing strut-braced monoplanes of the characteristic Wibault all-duralumin construction, in which a slightly corrugated duralumin skin is used throughout as a stressed member.

This form of construction was fully described in THE AEROPLANE in connection with the Wibault fighters built for the Chilean Government by Vickers Ltd. about a year ago. Minor modifications have since been introduced, but in essence the structures are similar.



The Amiot single-seat fighter split-type undercarriage and wing-stub petrol tank.

The two-seater is known as the type 121, and has both seats behind the wing.

SINGLE-SEAT FIGHTER.

DIMENSIONS.—Span 9.16 m. (30 ft. 0 in.), Length 6.92 m. (22 ft. 8 in.), Height 2.8 m. (9 ft. 2 in.), Wing area 16.7 sq. m. (179 sq. ft.).

WEIGHTS AND LOADINGS.—Weight empty 965 kg. (2,023 lbs.), Fuel and oil 207 kg. (455 lbs.), Load (including pilot) 178 kg. (392 lbs.), Loaded weight 1,350 kg. (2,970 lbs.), Wing loading 80.5 kg./sq. m. (16.6 lbs./sq. ft.), Power loading 2.3 kg./h.p. (5.1 lbs./h.p.).

PERFORMANCE.—Speed at 3,000 m. (9,840 ft.) 276 km.h. (172 m.p.h.), at 6,000 m. (19,680 ft.) 270 km.h. (167 m.p.h.), Climb to 3,000 m. (9,840 ft.) 4 min. 20 sec., to 6,000 m. (19,680 ft.) 12 min. 23 sec., Ceiling 9,600 m. (31,500 ft.), Endurance at 5,000 m. (16,140 ft.) 3 hours, Landing speed 100 km.h. (68 m.p.h.).

TWO-SEAT FIGHTER.

DIMENSIONS.—Span 12.7 m. (41 ft. 8 in.), Length 8.95 m. (29 ft. 4 in.), Height 3.2 m. (10 ft. 6 in.), Wing area 29.5 sq. m. (316 sq. ft.).

WEIGHTS AND LOADINGS.—Weight empty 1,145 kg. (2,519 lbs.), Fuel and oil 262 kg. (576 lbs.), Load (including crew) 609 kg. (1,340 lbs.), Loaded weight 2,016 kg. (4,435 lbs.), Wing loading 68.5 kg./sq. m. (14 lbs./sq ft.), Power loading 4.03 kg./h.p. (8.87 lbs./h.p.).

PERFORMANCE.—Maximum speed 242 km.h. (150 m.p.h.), Speed at 3,000 m. (9,840 ft.) 237 km.h. (147 m.p.h.), Climb to 5,000 m. (16,400 ft.) 18 min., Ceiling 7,500 m. (24,600 ft.), Landing speed 95 km.h. (59 m.p.h.).

THE ITALIAN POLAR EXPEDITION.

On July 6, the Swedish Ministry of Defence was notified that Lieut. Lundborg of the Swedish Italia Relief Expedition had been rescued by Lieut. Schyberg flying a D.H. Moth belonging to the expedition.

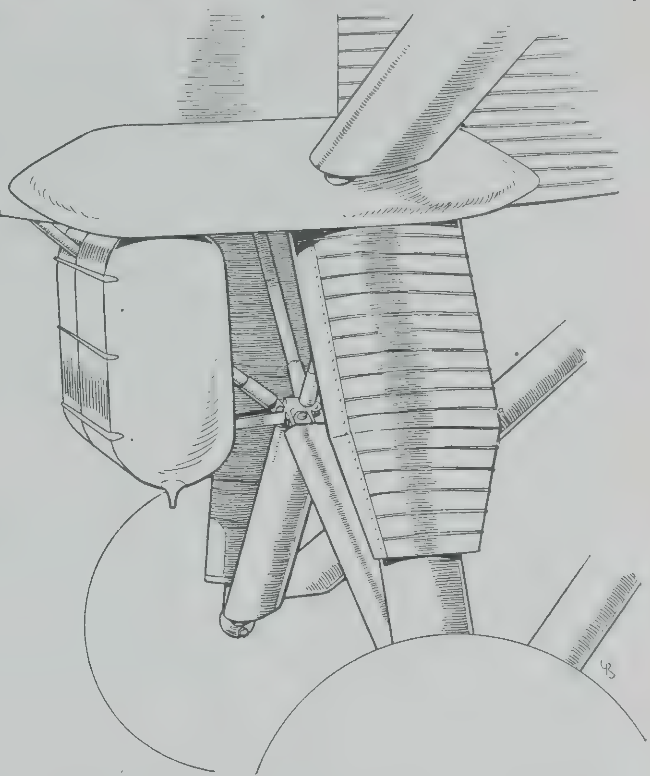
On June 24 Lieut. Lundborg rescued General Nobile and flew him to Whale Island, thereafter returning to endeavour to pick up the other members of the marooned party of five Italians under Lieut. Viglieri. On landing on the ice he damaged his machine and he has since been marooned with that party.

Two other Swedish machines accompanied the D.H. Moth and these succeeded in dropping batteries and provisions for the marooned party but were unable to get near enough to take anybody off the ice.

Another machine returned to the base in Spitzbergen on July 6 having thus completed a detailed survey of North East Land without having seen any trace of the other Italian party.

Search for Capt. Amundsen, Commandant Guilbaud and Lieut. Dietrichson, who set out to search for General Nobile in a Latham seaplane on June 18, has so far been fruitless.

The British Government offered to place two, three or four D.H. Moths at the disposal of the Norwegian Government to assist in the search for Capt. Amundsen, but owing to the fact that the relief ship was due to leave Tromsö before the machines could be delivered by air to Norway the Norwegian Government was unable to accept the offer.



The Wibault single-seat fighter split-type undercarriage.

A NEW AUSTRALIAN MAIL SERVICE.

On July 3 Sir Thomas Glasgow, the Australian Minister of Defence, announced that the contract for the operation of the proposed Perth—Adelaide mail and passenger air route has been let to West Australian Airways Ltd., the operators of the Perth—Derby air line.

The new service will begin operations in April, 1929, and will be maintained once weekly in each direction, running in connection with the incoming and outgoing English mail-boats from Perth.

The route will be equipped with night-flying beacons and a commodious rest-house will be erected at Forrest, in the centre of the Nullabor Plain. The type of machine to be used is the D.H.66 or Hercules (three 450 h.p. Bristol Jupiter engines) which has accommodation for fourteen passengers and has a maximum speed of 125 m.p.h.

The company will be guaranteed a mail load of 600 lbs. per trip and the guarantee will be doubled when the mail load exceeds 800 lbs. per trip over a period of four months. Two days each way will be saved in the transmission of mail between Great Britain and Australia. The passenger fare from Adelaide to Perth or *vice versa* will be £18 as compared with £12 by rail.

THE SOUTH AFRICAN SPEED RECORD.

In a recent reference to the South African speed record put up by Colonel Sir Pierre van Ryneveld, with a Jupiter engine in a D.H.9, the speed claimed was 138 m.p.h. This actually indicates a performance which is a good deal more than the mere figures represent. In the first place Swartkop Aerodrome is about 5,000 feet above sea level. Consequently the conditions were those which would exist at that height instead of at sea level. Secondly the speed quoted was uncorrected A.S.I. Therefore the performance represents a speed of about 150 m.p.h. at sea level, which is uncommonly good for the type of machine.

THE ROYAL AIR FORCE.

The London Gazette.

GENERAL DUTIES BRANCH.—The following Plt. Offs. are promoted to the rank of Flg. Off.:—B. H. Ashton (Jan. 14); D. J. R. Hylton (May 1); V. Q. Blackden, P. M. Watt, A. M. Watts-Read, P. C. I. Elderton, W. N. Blain, G. Francis, G. I. L. Saye, W. J. H. Lindley, J. Marson, P. L. P. Marett, A. R. Sarel (June 11).

Lt. M. Cursham, R.N., Flg. Off., R.A.F., ceases to be attached to the R.A.F. on return to Naval duty (June 17).

The S.S. comns. of the following Plt. Offs. on probation are terminated on cessation of duty:—M. V. Dyas (June 23); V. B. Lintott (July 1).

MEDICAL BRANCH.—Flg. Off. L. Freeman is promoted to the rank of Flt. Lt. (July 1); Flt. Lt. E. E. Isaac, M.C., relinquishes his temp. comn. on completion of service and is permitted to retain his rank (July 3).

RESERVE OF AIR FORCE OFFICERS.—GENERAL DUTIES BRANCH.—The following are granted comns in Class A.A. (ii) as Plt. Offs. on probation:—T. McDonald, G. Williams (June 15). The following Plt. Offs. on probation are confirmed in rank:—F. A. B. Fawsett (June 20); G. V. Kibblewhite (June 20); G. J. G. Paul (June 20); R. D. Crofton (June 30); P. G. Thomson (July 1). The following Flg. Offs. are transferred from Class C to Class A:—G. Terrell (June 26); J. M. S. Taylor (June 18). Plt. Off. on probation M. B. Barclay is transferred from Class A.A. to Class C (June 24). The following Flg. Offs. resign their comns. (April 1):—G. R. Stafford, W. F. Shaylor, V. J. Hatton.

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—NO. 600 CITY OF LONDON (BOMBING) SQUADRON.—The following Plt. Off. to be Flg. Off.:—G. de H. Vaizey (May 16).

Errata.—For "NO. 601 (CITY OF LONDON) (BOMBING) SQUADRON" in the *Gazette* of June 26, read "NO. 601 (COUNTY OF LONDON) (BOMBING) SQUADRON." The name of Plt. Off A. P. de Woulf de Wytt is as now described and not as stated in the *Gazette* of June 26.

Appointments.

Week ending July 9.

GENERAL DUTIES BRANCH.—Flight Lieutenant H. Hackney, to R.A.F. Depot, Uxbridge, 19/6.

Pilot Officers S. Hatton, to No. 422 Flight, 18/6. R. David, to No. 405 Flight, Donibristle, 21/6. P. D. Cracroft, to No. 406 Flight, Donibristle, 21/6. The undermentioned Plt. Offs. are posted to the R.A.F. Depot, Uxbridge, on appointment to S.S. Comns. (on probation), with effect from 29/6:—J. R. Ayling, T. F. Balfour, R. L. Bennet, A. K. H. Binley, J. H. Brown, R. J. Clare-Hunt, J. C. L. Claxton, A. G. Cole, R. H. Coupe, S. A. Davis, F. C. Edney Hayter, R. C. W. Ellison, D. L. Iremonger, J. M. Israel, E. G. James, G. W. J. Jarrett, G. R. O'C. Lempriere, C. N. McLoughlin, W. C. Garrett-Petts, J. G. Reiss, J. D. Robertson, H. E. Sales, I. M. Smith, R. H. Spurrier, W. G. Stevenson, K. G. Vandyck, F. K. Wood.

Fatal Accidents.

The Air Ministry regrets to announce that as the result of an accident at Quetta, India, to a Bristol Fighter machine of No. 31 (Army Co-operation) Sqdn., Quetta, on July 3, Flg. Off. Clarence Reginald McEvoy, the pilot of the aircraft, and 363249 L-AC. James Leslie Mason, were killed.

The Air Ministry regrets to announce that as the result of an accident at Mosul to a Bristol Fighter machine of No. 6 (Army Co-operation) Sqdn., Mosul, on July 4, Flg. Off. Alexander Bruce Kay, the pilot of the aircraft, died from injuries, and the passenger, 357613 L-AC. Alfred Harry Bolton, was slightly injured.

A message from Mosul in *The Times* of July 7 states that Flg. Off. A. B. Kay's machine was flying low over the bridge across the Tigris and came into collision with telegraph wires and fell into the river.

The Air Ministry regrets to announce that as the result of an accident at Corstorphine to an Avro machine of No. 603, City of Edinburgh (Bombing) Sqdn., Auxiliary Air Force, on July 7, Plt. Off. John Temple Lyall Shiells, Auxiliary Air Force, the pilot and sole occupant of the aircraft, was killed.

Vacancies for Apprentice Clerks.

The Air Ministry announces that sixty vacancies exist in the Royal Air Force for well-educated boys, between the ages of 15½ and 17, to enter as apprentice clerks. Approximately 30 of the posts will be filled by means of an open competition which will be held by the Civil Service Commissioners in October at various centres and the remaining 30 by direct entry of boys who have obtained an approved school certificate.

Successful candidates will be required to complete a period of 12 years' Regular Air Force service after reaching the age of 18, in addition to the training period. At the age of 30 they may return to civil life or may be permitted to re-engage to complete time for pension.

Detailed information regarding the apprentice clerk scheme can be obtained from the R.A.F., Gwydyr House, Whitehall, S.W.1.

Permanent Commissions in the Medical Branch.

An Air Ministry Order states that the following medical officers have been accepted provisionally for permanent commissions:—

Flight Lieutenant:—H. W. Corner, M.B.

Flying Officers:—J. Twohill, M.B., E. A. Rice, M.B., J. Hutchieson, M.B.

The 'Iraq Command.

The Air Ministry announces that Air Vice-Marshal Sir Robert Brooke-Popham, K.C.B., C.M.G., D.S.O., A.F.C., has been selected to succeed Air Vice-Marshal Sir Edward L. Ellington, K.C.B., C.M.G., C.B.E., as Air Officer Commanding the 'Iraq Command towards the middle of November next, on completion by the latter officer of two years service in 'Iraq.

Air Vice-Marshal Sir Robert Brooke-Popham was born a Mendlesham, Suffolk, in 1878, the son of the lat Henry Brooke, of Wetheringsett, and was educated at Haileybury and Sandhurst. He assumed the additional surnam of Popham by Royal Licence in 1904.

He was appointed to a commission in the Oxford an Bucks Light Infantry in 1898 and was promoted Lieutenan in 1899 and Captain in 1904.

In 1910-11 he successfully completed a course at the Staf College, Camberley.

He learned to fly on a Bristol biplane at Brooklands, an his Royal Aero Club certificate, No. 108, is dated July 18 1911. He joined the Air Battalion, R.E., in March, 1912 and in April, 1912, he took over the command of the Aeroplane Company on Salisbury Plain from Captain Fulton On May 13, the date of the formation of the R.F.C., thi company became No. 3 Squadron of the new formation.

In September, 1912, No. 3 Squadron, R.F.C., under hi command, took part in the Army manœuvres, assemblin such strength as it could muster near Cambridge. I August, 1913, a flight of No. 3 Squadron became the base o the new No. 5 Squadron.

Sir Walter Raleigh, in *The War in the Air,* Volume I wrote:—"Among the many suggestions made by Majo Brooke-Popham for improving the efficiency of the corps some of the most important have been vindicated by th subsequent experience of the war." Sir Walter Raleig also wrote:—"The work of Major Brooke-Popham's squadron during these years of preparation included a grea diversity of experiment."

On the outbreak of war in August, 1914, he went t France as Deputy-Assistant Quartermaster-General on th Headquarters Staff of the R.F.C. In November, 1914, h was promoted to be temporary Lieutenant-Colonel and appointed to form and command the 3rd Wing, R.F.C. H was made an Officer of the Legion of Honour in November 1914, for gallantry during the operations between Aug. 2 and Aug. 30, 1914.

He was appointed G.S.O., with the rank of Wing Commander, in May, 1915, and in June, 1915, he was made Companion of the Distinguished Service Order for distinguished service in the field.

On the reorganisation and expansion of the R.F.C. i March, 1916, Lieut. Col. Brooke-Popham was appointed t the newly sanctioned post of Deputy-Adjutant and Quartermaster-General, with the rank of Brigadier-General.

He was awarded the Air Force Cross in the New Year' Honours of 1919, and the *London Gazette* of Jan. 31, 1919 announced that he had been appointed a Companion of St Michael and St. George in recognition of distinguished services in the field in France and Flanders. He was made Companion of the Bath in the King's Birthday Honours o 1919.

In July, 1919, he was appointed Director of Research a the Air Ministry.

In April, 1922, he was appointed first Commandant of th newly-formed R.A.F. Staff College at Andover.

He was promoted to the rank of Air Vice-Marshal i January, 1924, and in May, 1926, he was appointed to command the Fighting Area, a new command under the Ai Defence of Great Britain. In the King's Birthday Honour of 1927 he was appointed Knight Commander of the Orde of the Bath in recognition of his distinguished services i the three last mentioned appointments.

The 1929 Staff Course.

The seventh course at the R.A.F. Staff College, Andove will begin on Jan. 21, 1929.

The following officers who have passed the qualifyin examination have been selected for the seventh course:—

Wing Commanders:—E. W. Havers (Stores Branch), H. J. F. Hunte M.C., and L. T. N. Gould, M.C.

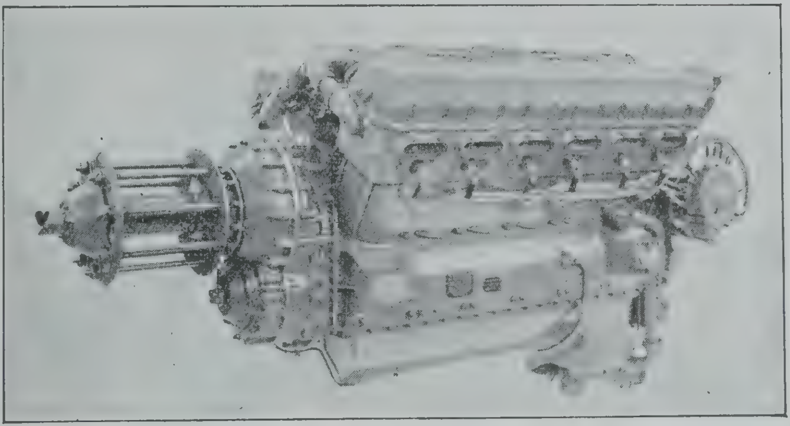
Squadron Leaders:—J. H. D'Albiac, D.S.O., E. L. Howard-William M.C., I. T. Lloyd, and W. E. G. Bryant, M.B.E.

Flight Lieutenants:—L. O. Brown, D.S.C., A.F.C., D. Colyer, A.F.C H. G. Crowe, M.C., E. D. Davis, L. E. M. Gillman, R. U. Goddar F. L. Hopps, A. P. Ledger, M.B.E., J. A. McDonald, F. H. E. Reev H. W. L. Saunders, M.C., D.F.C., M.M., F. N. Trinder, J. G. Walse M.C., W. M. Yool.

Air Action Against the Imam of Yemen.

A reply by the Secretary of State for the Colonies to number of questions in the House of Commons on July revealed the fact that Air action has recently taken plac against the Imam of Yemen.

Mr. Amery said that, following the Air action last February, the Imam had requested a truce of thirty days fo general negotiations. His request was granted, and th truce took effect from March 25. The Acting Resident Aden had proceeded to Taiz in Yemen territory to ope negotiations, but had found that the Imam's representativ there was not empowered to negotiate a treaty. Subsequently the Imam had been informed that His Majesty'



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At the R.A.F. Display, at Hendon, the Fairey 'Fox' and Westland 'Wizard' were both fitted with Rolls-Royce 'F' engines.

*

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Government were prepared to conclude immediately a brief treaty, confined to (1) recognition by His Majesty's Government of the Imam's independence in the Yemen; (2) recognition by the Imam of the frontier of the Aden Protectorate, with certain modifications in his favour; and (3) a promise to the Imam of such assistance as His Majesty's Government could render him within the limit of their international obligations.

The truce had been extended to June 1 to give the Imam time to consider this proposal. On the Imam asking for a further extension to July 17 he had been informed that this extension would be given provided that, as an earnest of good faith, he evacuated the town of Dhala by June 20. This he had failed to do. Consequently demonstration flights had been made and warnings dropped giving four days' notice, and on June 25 air action had been recommenced. Air action had been taken in all on 14 several days, including one on which an attack had been delivered on Taiz. The R.A.F. had suffered no casualties during such action.

Short Service Officers in the R.A.F.

The arrangements made for assisting short service officers of the R.A.F. to obtain employment at the end of their service on the Active List, were described in the House of Commons on June 28 by the Secretary of State for Air in reply to a question by Sir R. Thomas.

Sir Samuel Hoare said that a special organisation which was worked in connection with the R.A.F. Educational Service and was based on the lines of the Universities Appointments Boards had been set up for the purpose of assisting short service officers to obtain suitable appointments when they left the Service. The results so far achieved indicated that apart from posts in connection with aviation there were a number of openings in industry and commerce for which the experience gained in the Air Force in initiative, power of command, *savoir faire* organisation, and knowledge of life and work overseas provided a valuable training when combined with the educational facilities of which an officer might take advantage while still in the Service.

R.A.F. Machines for Spitzbergen.

The Secretary of State for Air, replying to questions by Lieut.-Cmdr. Kenworthy in the House of Commons on June 28, said that the possible co-operation of British Service aircraft in the rescue of the crew of the *Italia* had been carefully considered by the Air Ministry in consultation with the Admiralty, and it had reluctantly been decided that, having regard to the icebound condition of the sea in the neighbourhood, there was no likelihood of effective aid being afforded at this juncture by the R.A.F., either by means of aircraft based on a carrier or by flying-boats. Sir Samuel Hoare added that he had placed himself in communication with the Italian authorities and invited them to call upon the R.A.F. if there was anything that they could do to assist in the rescue operations.

In the House of Commons on July 2 the Under-Secretary of State for Air, adding to Sir Samuel Hoare's statement, said that the Italian Government had replied that if occasion arose they would most certainly avail themselves of the offer of the services of the R.A.F. On June 30 a telegraphic request had been received from Norwegian sources from the committee for the relief of Amundsen, asking whether we could lend two small float seaplanes, which could be refitted with skis in Norway. Sir Samuel Hoare had replied that if any of our available types could be utilised by the Norwegian authorities after this modification the R.A.F. would be happy to furnish these aircraft forthwith.

On July 5, in the House of Commons, Sir Philip Sassoon, replying to Rear-Admiral Sueter, said that on Monday afternoon (July 2) an answer had been received to the effect that the machines required were not float seaplanes of Service type, but Moth light aeroplanes. An offer was at once made that the R.A.F. should fly up to four machines of this type to Norway and there hand them over to the Norwegian authorities for use in such manner as they thought fit since delivery by air appeared to be the quickest method available. The Norwegian Government replied on Tuesday that under the latest arrangements made for the sailing of the relief vessel from Tromso the machines could not arrive in time. They warmly appreciated this ready offer of assistance, but in the circumstances could not avail themselves of it.

Serjeant-Pilots in the R.A.F.

Replying to a question by Mr. Hore-Belisha in the House of Commons on July 4, the Under-Secretary of State for Air made the following statements :—

When a serjeant-pilot reverts to his former trade employment on completion of five years' flying service, he retains the rank of serjeant and receives the pay of that rank, but not, of course, the additional pay as pilot. He receives, however, a bounty of £10 a year conditional upon his continuing in flying practice. I have no reason to regard this arrangement as unsatisfactory.

The rule that airmen pilots must revert to trade employment after five years' flying service has been obligatory since Jan. 1, 1927, and all men who have commenced training as pilots since that date have volunteered on that understanding. The rule is necessary in order to maintain the reserve. Airmen who commenced training as pilots before that date were offered the option of continuing under the old system or coming under the new rule and the majority chose the latter alternative. I am not aware of any discontent and do not see on what grounds it could exist.

[The question of what flying practice an N.C.O. pilot gets after he has passed to the Reserve has still to be asked and answered.—C. M. MCA.]

Slotted Wings in the R.A.F.

According to a statement by the Secretary of State for Air in the House of Commons on July 4, in reply to a question, the number of Service aircraft which have been fitted with the automatic slot to date is 108, and contracts for the fitting of a further 478 machines are in hand. In addition, 40 sets of slot components have been despatched for fitting to aeroplanes overseas, and a further 40 sets are awaiting shipment.

In reply to a supplementary question by Captain Gunston, Sir Samuel Hoare said that he was afraid there had been one or two accidents to machines fitted with the slotted device.

MIDDLE EAST CHAMPIONS.—A sports group from No. 4 Flying Training School, R.A.F., Abu Sueir, Egypt. This Unit has won the Sudan Shooting Trophy, the Command Rugby Football Cup, the Novices' Boxing Championship, and the Middle East Inter-Unit Challenge Cup (Athletic Championships).

BLACKPOOL AIR PAGEANT
JULY 6 & 7

4 firsts
won on
Pratts

The Inter-Club Members Handicap Race
[Final]
1st. Dr. Dixon, (Newcastle Aero Club).
3rd. W. J. Brighton, (Midland Aero Club).

Owner Pilots' Handicap Race [Final]
1st. Norman Jones.
3rd. Flt-Lt. Soden.

DAILY DISPATCH NOMINATION HANDICAP [Final]
1st. Miss O'Brien.

INTER-CLUB RELAY [Final]
1st. Midland Aero Club.

All won on PRATTS

D.A. 214

THE BLACKPOOL PAGEANT.

The Lancashire Aero Club and the Blackpool Corporation alike deserve the heartiest congratulations on the success of the Blackpool Pageant on July 6 and 7. Owing to the bad weather on Friday the gate for the two days was probably not as big as the promoters had hoped. But certainly there was a colossal crowd on the aerodrome, and so something in the region of 100,000 of the holidaymakers of Blackpool must have been made considerably more airminded than they were before.

Blackpool held the first official flying meeting in England in 1909 (Doncaster held one unofficially and began three days earlier); and held another in 1910. So Blackpool may fairly claim to be the pioneer of North Country Aviation.

So far as mere money is concerned, Blackpool never seems to mind losing a lump on one attraction, for it knows it will make it up on another, "and then some." Being essentially a holiday resort, it exists on the principle that what you lose on the swings you make on the roundabouts. If the city lost money on the Air Pageant it made it in hotel bills and drinks and dance-halls and amusement-parks out of the people who were particularly attracted from the surrounding country by the lure of the air.

The aerodrome itself was bad. Seen from above, even on the Saturday, it looked like a series of small ponds, or even rather like a large lake with islands in it. And when the Handley Page W.10s. which Imperial Airways had sent down to do joy-riding were taking-off, with a full load of fourteen passengers every time, they looked like seaplanes.

What used to be the racecourse had been turned into an aerodrome, and it struck one as being rather badly arranged, but probably that could not be helped, owing to the shape of the place. Between the grand-stand and the actual aerodrome there was an enormous expanse, which was the 1s. enclosure. Consequently the people who paid high prices to sit on the grand-stand were further away from the aerodrome than any other spectators.

The somewhat cheaper enclosures were right away from where there was anything doing, and the people in the 1s. enclosure had by far the best of the flying. The people in what was, one believes, the 3s. enclosure, had the sun in their eyes the whole afternoon, and the attendance there was so poor that the refreshment contractors packed up because business was so bad.

In discussing meetings of this sort there seems good reason to put criticisms first instead of ending on a note of criticism. Therefore one may add to the foregoing the fact that in one respect the Press arrangements were indisputably bad, although the members of the Press were extraordinarily well and hospitably treated by the promoters of the meeting. Getting the results of the heats of the races and even of the finals was practically impossible unless one either sat with the judges and timekeepers, who naturally did not want to be bothered with questions while they were at work, or unless one sat in the Press room underneath the grand-stand a quarter of a mile away and took down the results from the notice board as they were telephoned from the aerodrome. And then, of course, one saw nothing of the racing.

Another most irritating thing both from the public and the Press point of view was that instead of putting the machines in the programme according to their lettering, which can always be seen if anything is visible at all, the organisers gave each machine a number, which was printed in red on a piece of white paper and stuck on the rudder. Frequently the paper blew off, and at no time was it as easily read as the lettering on the sides of the machines. The result was that if one wanted to identify any machine in the programme one had to pick out the lettering and then search through the key list of competing aircraft to find out what the machine really was.

Apart from those criticisms the meeting was very well run indeed. Mr. Alan Goodfellow, as Clerk of the Course, and Mr. J. C. Cantrill, as Chief Marshal, both of the Lancashire Aero Club, ran their part of the show like clockwork. Events were well up to time all the way through, and the organisation for getting machines on the starting-line, and so forth, was excellent.

The speeds returned for the various races may be neglected. The course was obviously less than the distance stated, for in spite of a high wind on both days every machine was logged as travelling at a speed of which it was known to be incapable.

The list of officials to whom the credit is due, from the Air Pageant Executive Committee, headed by His Worship the Mayor (Councillor T. G. Lumb), downwards, is too long to be given here, but everybody did his duty faithfully and well. Incidentally, in this list one notices that the handicappers and the starters, who were also the timekeepers, are given a singular distinction in the programme. They are set down simply as Goodman Crouch, Dancy, Reynolds, and Dutton. Everybody else is Alderman This or Councillor That, or Colonel the Other, or Something Esq., or at any rate they have their Christian names or initials or their professional titles. Without suggesting that the officials mentioned by name quite deserve a peerage apiece, one must say that the handicapping must have been very good, in spite of the mis-measurement of the course, for nearly all the finishes of heats and races were very close indeed.

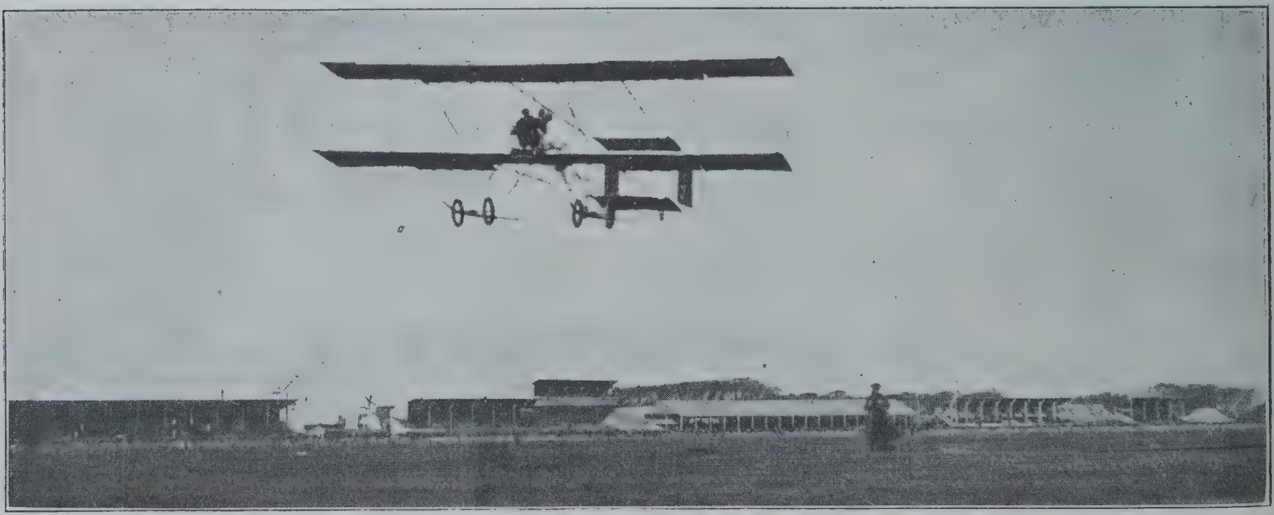
Friday's Events.

One cannot say anything of Friday's performance from personal experience, as one was unable to get to Blackpool from Paris before Friday night, but one gathers that the level of flying was very good. The racing consisted of heats of the various competitions.

There was also an exhibition by Mr. Neville Stack on the Moth belonging to A.D.C. Aircraft Ltd. There was a fly-past of famous pilots and machines (some of the famous pilots of the olden days travelling as passengers with modern pilots). There was an exhibition of aerobatics by Mr. H. A. Brown (the Avro test pilot) and Mr. J. C. Cordes (deputising for Mr. Broad, who had to be at Stag Lane doing some test work).

There was a parachute descent by a woman parachutist, who was carried by the wind just over the fence of the enclosure and alighted in the crowd, stepping lightly on the face of an old lady spectator. The injured party was appeased, one gathers, by being presented with an autographed photograph of the parachutiste.

There was a display on the Avro Avenger, not exactly of the kind which was expected. Sq. Ldr. Noakes took the machine up, but somehow or another the wrong tap had been turned in the petrol supply, with the result that the engine ran out of fuel soon after getting off the ground. Sq. Ldr. Noakes skilfully put it down on the golf course outside the aerodrome, dodging several bunkers and coming to rest on the club's pet green, which was not built to stand the wear and tear of the tail-skids, especially on a wet day. Rumour says that when he had landed safely Mr. Lamplugh, of the British Aviation Insurance Group, sang "My Heart Stood Still." History does not recall whether Sq. Ldr. Noakes replaced the divots. Anyhow, he flew the machine



AT BLACKPOOL, 1909.—Henri Farman on his own biplane.

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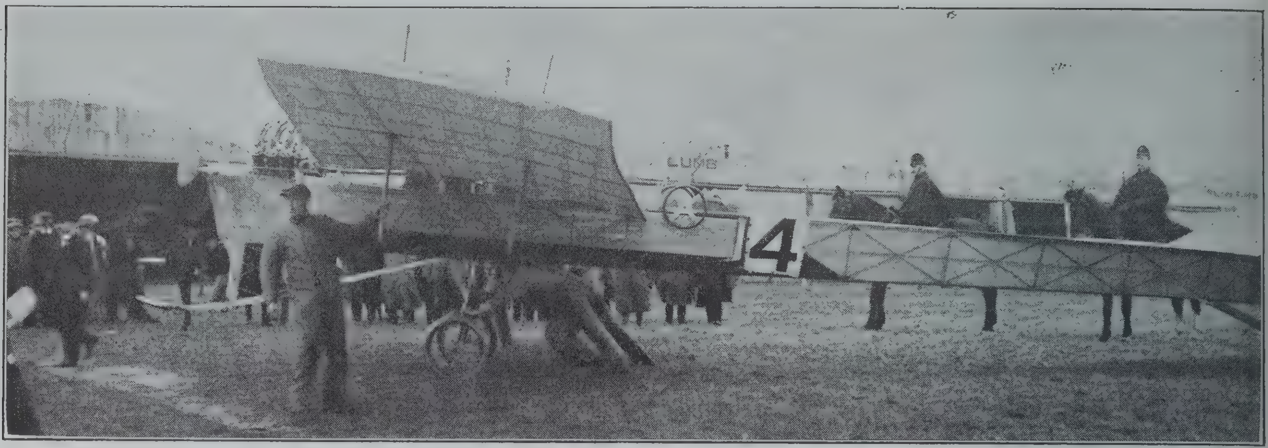


AT BLACKPOOL, 1909.—Hubert Latham's Antoinette.

back to the aerodrome off the golf course after the mistake about the petrol had been discovered.

There was an aerobatic contest between the instructors of the various clubs. And the great event of the day was the exhibition by Herr Gerhard Fieseler, of whom one will have something to say in describing Saturday's events.

SATURDAY'S FLYING.

The first part of Saturday's performance consisted chiefly of heats of the various races. The only exciting incident in this was a collision. Mr. Downes-Shaw, of the Bristol Club, arrived on a Moth, and seeing an official-looking tent on his starboard bow taxied over to it. It happened to be the judges' and timekeepers' tent, and the machine stopped so that it eclipsed their view of the starting line. Mr. Downes-Shaw was asked to taxi up to the machine park, and did so just when Flt. Lt. Bonham-Carter was starting on the Parnall Imp.

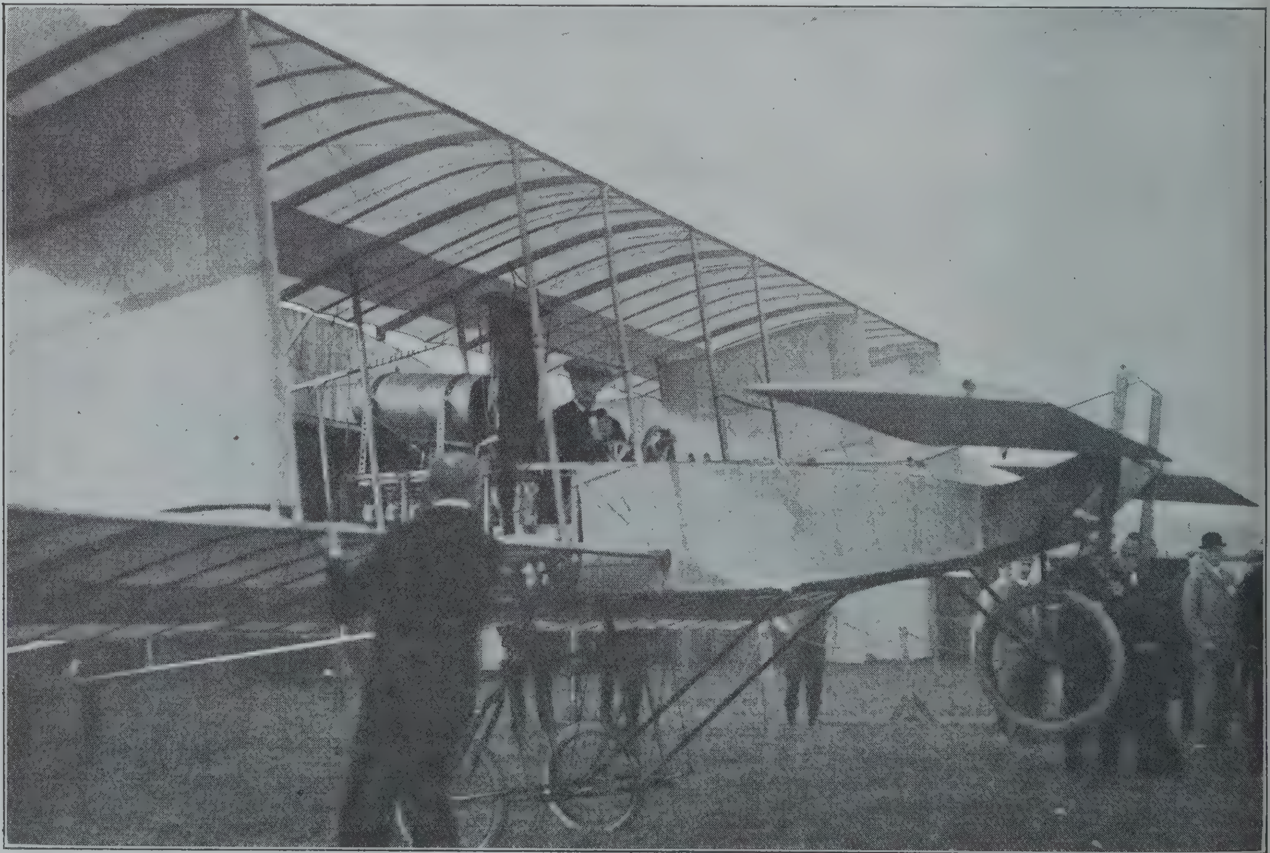
Mr. Shaw was naturally taxying looking over the left-hand side of his machine, and Flt. Lt. Bonham-Carter, taking off, was equally naturally looking over the left-hand side of his machine, consequently neither saw the other. The result was that just as the Imp had cleared the ground nicely her undercarriage caught the starboard wing of the Moth. The Moth's airscrew chewed bits out of the Imp, and the Imp's airscrew helped to chew up the wings of the Moth, but fortunately the Imp got down more or less on an even keel. Instead of pitching straight onto her nose she just tilted onto the engine, and then fell back again on the wreck of the abolished undercarriage.

The total result was a damaged nose to the Imp's passenger, and two very much written-off aeroplanes. There are hopes that the Imp may be rebuilt in time for the King's Cup Race on the 20th.

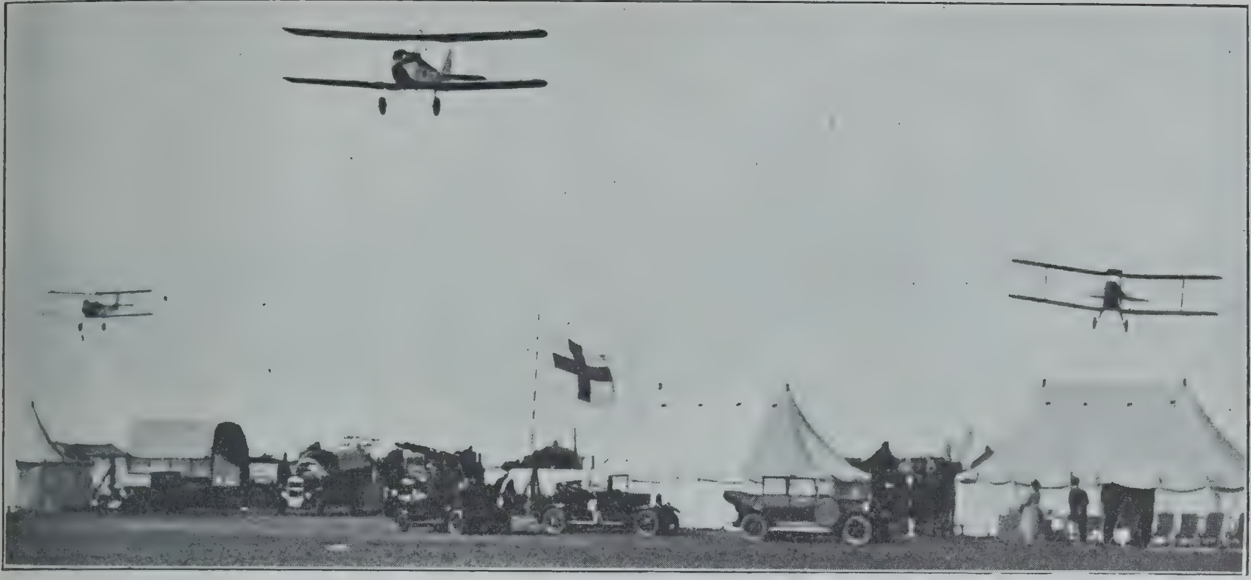
Also, in the first part of the programme there was a very pretty display of flying with slotted wings by Sq. Ldr Noakes and Mr. J. C. Cordes on Moths. There was a good show of upside-down flying on a Blackburn Bluebird by Mr. Lowdell, of the Suffolk Club. Mr. Leslie Irvin, the inventor of the Irving parachute, whom one would have expected to have given up such frivolities now that he is a business man on a big scale, did a parachute drop in one of his own parachutes, presumably just by way of showing that he had not forgotten how to do it. Messrs. Martin, Rose, Baker, Beck and Matthews also performed aerobatics in the competition for club instructors.

HERR FIESELER.

Then Herr Fieseler came out and did a show which was not in the programme. He had been booked for Friday only, but very sportingly consented to give a show on Saturday also, for a comparatively small increase in his fee That he should do so was a good thing, because it not only gave an opportunity of seeing his performance to thousands of people who were not there on Friday, but to those more experienced in flying it also gave an opportunity of com-



AT BLACKPOOL, 1909.—Henri Rougier on his Voisin. Notice the front elevator, the swivelling undercarriage, and the side-panels between the wings, supposed to give lateral stability.



AT BLACKPOOL, 1928.—Miss Winifred Brown on her Moth (Cirrus) winning the Open Handicap.
—(" Aeroplane " photograph.)

aring at comparatively short intervals his performance ith that of the famous Genet-Moths from the Central lying School.

There is no doubt about the fact that Herr Fieseler is an xtraordinarily fine pilot. His machine, a Raab-Katzenstein chwalbe, with 120 h.p. Siemens engine, is naturally pecially rigged for this kind of flying. And he has special etrol arrangements to keep his engine running when he is pside-down. Apart from being a fine pilot, he is a skilful howman. He did all his stunts so nearly inside the limits f the aerodrome that he could be seen without much ubber-necking, and he kept on doing things so that there as no wait between one trick and the next.

With his specially rigged machine and his spare power e was able to do a series of rolls without losing height, so hat his path across the aerodrome was practically a hori-ontal corkscrew. His famous outside loop is nothing like o thrilling as one might expect. That, perhaps, is because e does it so neatly. But one noticed that he did not come p absolutely square at the end of the loop. He seemed to ave a tendency to get off his line somewhat.

He does nearly all his manœuvres slowly, and with that urious appearance of ease which was so characteristic of the late Sq. Ldr. Longton's flying. In fact, never since Sq. Ldr. Longton's performances on the Camel has one seen aerobatic flying done with quite such neatness and finish.

Herr Fieseler goes about his work with true German thoroughness. An example of this is seen in the fact that in front of him in the cockpit he has a notice-board on which is typed the order of each trick, the time which each manœuvre should take, and the height at which it should be performed, so that instead of just throwing himself about the sky he works to a fixed programme.

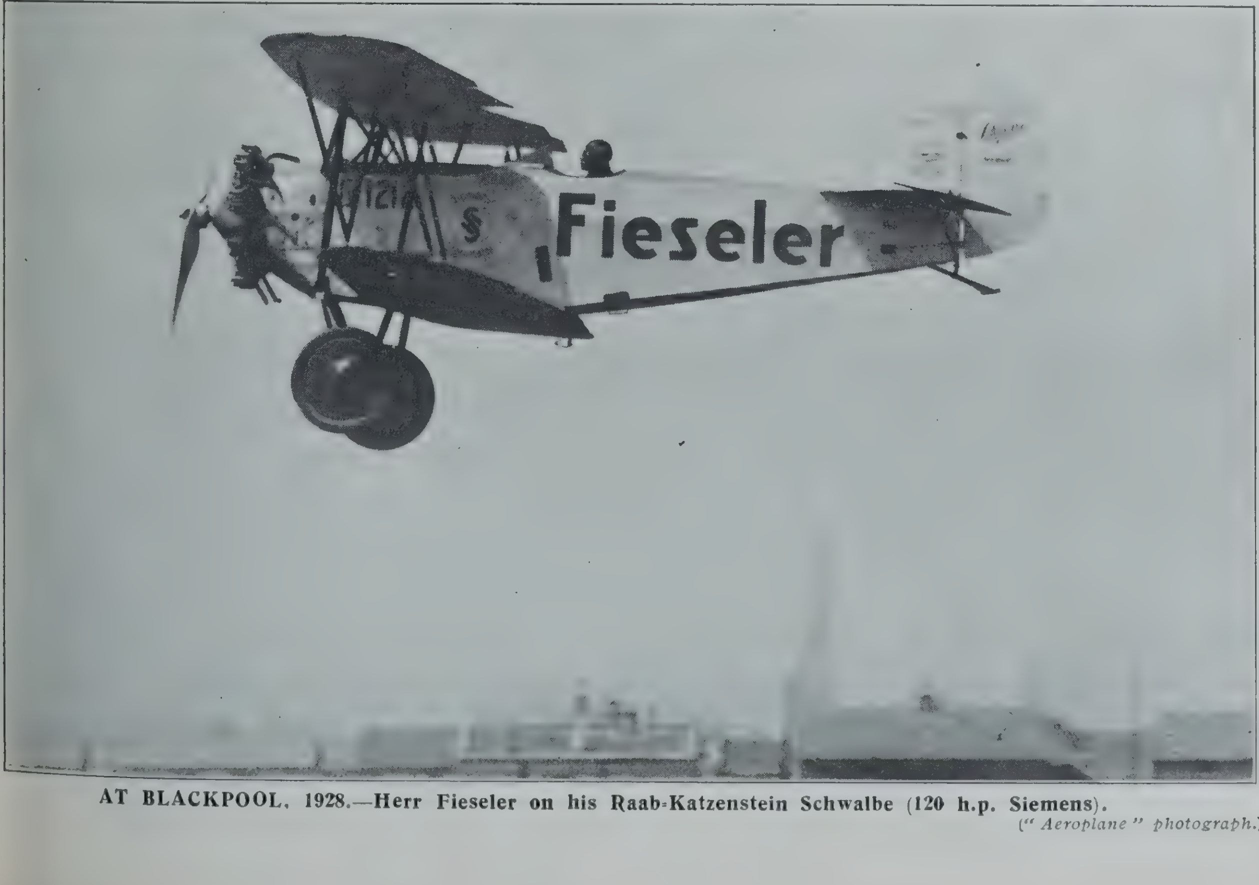
The R.A.F. Display.

From 15.00 to 17.00 hours the crowd was entertained by a not very miniature R.A.F. Pageant,—some 75 machines and hundreds of airmen having been sent up from Hendon. Of this display there is little need to write, for it was all described in last week's Issue of The Aeroplane.

Five machines of No. 25 (Fighter) Squadron on Gloster Grebes did a converging bombing attack on a group of tents.

Flt. Lt. Horniman, on a Gloster Gamecock, gave his exhibition of aerobatics.

No. 32 (Fighter) Squadron on Armstrong Whitworth Siskins gave a demonstration of fighting formations. One must



AT BLACKPOOL, 1928.—Herr Fieseler on his Raab-Katzenstein Schwalbe (120 h.p. Siemens).
(" Aeroplane " photograph.)

say that this was exceptionally well done. Although there was a good breeze the air was steadier than it was at Hendon, so the formations were better. The squadron did one formation which one cannot recollect ever having seen at Hendon. The machines came over the aerodrome in ordinary Vee flights-astern formation, but with the second flight lower than the leading flight, and so close to it that the leader of the second flight was about level with the wing machines of the first flight. The third flight was again lower, in the same position in relation to the second flight, so that the whole formation had the effect of a flight of Vee-shaped steps. Probably this has no fighting value, but it is very pretty to watch.

The fourth event was a fight between two pilots of No. 25 (Fighter) Squadron on Gloster Grebes, supposed to be between a novice and an expert. But this time the novice was a great deal too good for the expert, and got away with it every time.

No. 5 was an exhibition of battle squadrons taking off, the machines being No. 3 and No. 17 (Fighter) Squadrons on Hawker Woodcocks, No. 11 (Bomber) on Hawker Horsleys and No. 99 (Bomber) on Hyderabads.

No. 6 was a demonstration of manœuvring by radio-telephony by No. 56 (Fighter) Squadron on Armstrong Whitworth Siskins.

No. 7 was a display of aerobatics by two pilots of No. 33 (Fighter) Squadron on Hawker Woodcocks. This was a very good show of flying, but it might just as well have been cut out, because what with the Club Instructors' aerobatics and Herr Fieseler's aerobatics and Flt. Lt. Horniman's aerobatics we had all seen quite enough to know that a good pilot can put an aeroplane into any position he likes and put it back again.

No. 8 was an Air Battle by the squadrons which had got off in event No. 5. It was very well done, there was any quantity of smoke and flame and noise and the crowd enjoyed it. By that time we had reached the British Working Man's Tea Time, and about 50,000 of the crowd faded away tea-wards, evidently thinking that the battle ended the show. Consequently they missed what was, at any rate to the experienced, the best event in the programme.

THE C.F.S. MOTHS.

This was an exhibition, which did not appear in the programme, of aerobatic flying by the two Genet-Moths from the C.F.S. piloted by Messrs. Atcherley and Boyle. To the aviation people this was particularly interesting after having seen Herr Fieseler's show.

Considered purely as a show it did not compare with H Fieseler's. But then of course an officer in the King's S vice is not supposed to be a showman. So much the wo for him if he is. Also the beginnig of the turn was spo by the fact that the Moths had had to go up before the Battle started, and when their turn came to begin they w at a height of about 3,000 feet a mile or two out at sea. C sequently there was quite a long wait, or rather it seem long, before they came in over the aerodrome and got work.

To the experienced eye their performance certainly extraordinarily good. It was better than it was at Hen because the wind was steadier. Their outside loops w perfectly clean and fetched up exactly on the vertical pl on which they started. The thing which impressed the ot pilots, and what in America would be called the " air far generally was their low rolling. In fact some of the ol hands remarked that it was quite naughty of them to do so low.

One imagines that a Moth with 120 h.p., instead of 60 h.p. which these machines have, and with the top pl rigged flat, instead of with a dihedral angle, in the hands any of the R.A.F. pilots who are as good as these two, co put up a show which would outshine even Herr Fieseler. the credit of Herr Fieseler be it said that he watched Moth show with intense interest and admitted quite fr that he himself could not hope to do better.

Incidentally there was quite a good deal of discuss among the aviation crowd at Blackpool about bringing H Fieseler there at all. Some of the old die-hards objected him because he is a German pilot. Some objected to organisers of the Pageant spending money on bringin foreigner of any kind to fly. Some said that it was form to put him up on the same day as the C.F.S. Mo One's own personal point of view is that as Herr Fies was the first man to do an outside loop the Blackpool pe were quite justified in bringing him over to show us he does it. As for his being a German, most people have had anything to do with Germany since the War h discovered what one personally preached right through War, namely that the Germans are a kind-hearted pleasant people with whom an Englishman finds it easie get on than almost anybody in the World. And in case they showed that they are first-class fighting men worthy of our most sincere respect. As for having the shows on the same day, that, as one has said before, g

AT BLACKPOOL, 1928.—Gloster Gamecocks (Jupiters) in the demonstration of converging bombing.

(" Aeroplane " photogra

The FAIREY metal AIRSCREW

REED LICENCE

The telegrams below from Lady Heath, Sqd. Ldr. Hinkler and Capt. Lancaster show the high qualities of the Fairey Metal Airscrew where efficiency coupled with complete reliability are required.

Sole Manufacturers of the Fairey Patent Metal Airscrew (Reed licence) for the British Empire:

THE FAIREY AVIATION COMPANY LTD., HAYES, MIDDLESEX.

TELEGRAM.

Bundaberg, 1st March, 1928.

"Many thanks congratulations must congratulate you on Fairey Reed Propellor which is giving superior results in spite of extreme variations heat cold and heavy rain during past eighteen months use including racing and touring."

HINKLER.

TELEGRAM.

Heliopolis, 4th April, 1928

"Did not have to even think of carrying spare propellor on my Avian which is first light aeroplane fly Cape to Cairo your metal one functioned perfectly in even extreme heat hundred and twenty fahrenheit South Sudan this is third machine I have had it on."

HEATH.

EGRAM

Karachi, 8th December, 1927.

"Metal propellor has given perfect satisfaction under trying conditions wooden propellor would have been useless."

LANCASTER.

MCM

a number of people a chance of comparing the relative skill of Herr Fieseler and our own pilots.

The R.A.F. part of the show ended with the usual set piece in which a fort was blown up with much noise and smoke to the joy of the remaining portion of the crowd. After that, from 17.30 to about 19.00 hours, the finals of various races were flown.

THE RACE RESULTS.

Unfortunately as one has already said, one could find no traces of who competed in what events or who won which heats on the Friday. Consequently one is taking the liberty of publishing the results acquired with infinite patience and zeal by Mr. Colebrook of *The Times,* as follows :—

FRIDAY'S EVENTS.

Owner Pilots' Handicap.—First Heat.—1, Mr. Norman Jones, Moth; 2, Mr. H. Brooklyn, Widgeon, Genet engine; no third place. Winner's speed, 77 m.p.hr. *Second Heat.*—1, Flt. Lt. F. O. Soden, Moth, Genet engine; 2, Mrs. W. S. Brown, Avian; 3, Mr. R. J. Cazalet, Widgeon. Winner's speed, 91¼ m.p.hr. *Final.*—1, Mr. Norman Jones; 2, Miss Brown; 3, Flt. Lt. Soden. Winner's speed, 97 m.p.hr.

Blackpool Business Houses' and Hotels' Nomination Handicap.—First Heat.—1, G. Hall, Avian; 2, Mr. G. R. Beck, Blackburn Bluebird. Winner's speed, 86 m.p.hr. *Second Heat.*—1, Flt. Lt. H. Bonham Carter, Imp; 2, Mr. F. O. Thorne, Avro Avian; 3, Mr. J. Oliver, Avian. Winner's speed, 96 m.p.hr. *Final.*—1, H. Bonham Carter; 2, G. Hall; 3, J. Oliver. Winner's speed, 100 m.p.hr.

Inter-Club Members' Handicap.—1, Dr. Dixon, Moth (Newcastle-upon-Tyne Club); 2, Mr. K. Twemlow, Avian (Lancashire Club); 3, Mr W. J. Brighton, Moth (Midland Club). Winner's speed, 95 m.p.hr.

Open Handicap Race.—First Heat.—1, Flt. Lt. Rose, Moth; 2, Miss S. O'Brien, Moth; 3, Mr. F. L. Turnbull, Moth. Winner's speed, 84½ m.p.hr. *Second Heat.*—1, Flt. Lt. Bonham Carter; 2, Miss C. Leathart, Grasshopper; 3, Mr. J. D. Parkinson. Winner's speed, 110 m.p.hr. *Third Heat.*—1, Mr. H. V. Baker, Avian; 2, Mr. G. Bartlett, Moth; 3, Mr. H. Brooklyn, Widgeon. Winner's speed 99½ m.p.hr. *Fourth Heat.*—1, Flt. Lt. Bruce, D.H.53; 2, Miss Brown, Avian; 3, Mr. D. Martin, Moth. Winner's speed, 85½ m.p.hr. Bruce was disqualified for not passing a corner. *Fifth Heat.*—1, Flt. Lt. Luxmoore, Avian; 2, Flt. Lt. S. N. Webster, Avro Avenger. Winner's speed, 97½ m.p.hr. The Avenger was announced as having done one lap at an average speed of 197 m.p.hr., and the course of 29 miles at an average speed of 180¼ m.p.hr. *Sixth Heat.*—1, Mr. C. F. Uwins, Bristol training machine; 2, Flt. Lt. le Poer Trench, Halton monoplane; 3, Flt. Lt. Soden, Moth. Winner's speed, 117½ m.p.hr. *Final.*—1, Miss Brown, Avian; 2, Mr. Baker, Avian; 3, Flt. Lt. Rose, Moth.

"Daily Dispatch" Nomination Handicap.—First Heat.—1, Miss Leathart, Grasshopper; 2, Mr. Summers, Avian; 3, Mr. F. O. Thorne, Avian. Winner's speed, 80 m.p.hr. *Second Heat.*—1, Miss O'Brien, Moth; 2, Sq. Ldr. Noakes, Avian; 3, Flt. Lt. Rose, Moth. Winner's speed, 84¼ m.p.hr. *Third Heat.*—1, Miss Winifred Brown, Avian; 2, Mr. E. V. Baker, Avian; 3, Major Veal, Moth. Winner's speed, 94 m.p.hr. *Final.*—1, Miss O'Brien; 2, Mr. Baker; 3, Miss Brown.

Inter-Club Relay Race (for team of three members).—1, Midland Aero Club; 2, Yorks Aero Club; 3, Newcastle Aero Club. Winning team—Willis, Jackson, and Brighton. In this contest the landings by the Newcastle members were particularly good.

Club Instructors' Aerobatic Contest.—1, Mr. G. Bartlett, Bristol, Wessex Club (37 points); 2, Flt. Lt. Rose, Midland Club (36 points); 3, Mr. G. E. Lowdell (29 points).

Balloon Bursting.—Flt. Lt. Bruce, Mr. Summers, Mr. Lowdell, and Mr. Lacayo all tied for the first four places.

OTHER EVENTS.

Somewhere in the course of the day, either when one was having lunch or tea, a Mr. F. Ford with a Russell parachute did a delayed drop from 4,000 ft., not pulling the cord until he had fallen 1,500 ft. Probably when he did pull the cor some members of the crowd were disappointed.

So far as the competitions were concerned there is ju one criticism which one would like to make. That is c the impropriety of what is called a Nomination Handica Events of this kind were one believes invented at a meetin at Bournemouth. Some local paper or hotel or tradesma pays an entry fee for the privilege of having one of th machines in the race entered in its or his name and for th right to nominate a passenger to fly in the machine. (course the whole thing is purely and simply an advertis ment for the local shopkeepers and so forth.

There is really no objection to such a form of advertisin or to such an event, so long as the piloting is confined professional aviators. They have their livings to make lik the rest of us. There is in fact no real objection to own pilots letting themselves out for such an advertisement. B one does hold most emphatically that serving officers in th Air Force ought not to compete in such events.

It is not seemly that an officer's name should be link on the programme with that of some local café or tailor provision merchant. It may sound snobbish, and the afor said local shopkeeper may be a wholly estimable individua while on the other hand the serving officer may in ma ways have a blemished character. But one merely sugges that such things ought not to be as done. There is need to make any rules or regulations about it. All that necessary is for serving officers in the R.A.F. not to do

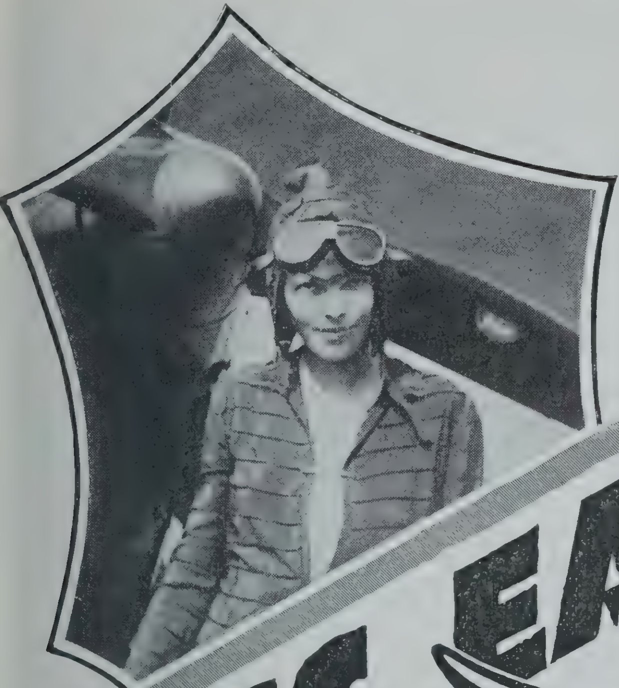
On general principles one objects to the whole thin It is only one step between that and making the machin fly in such races with a banner streaming from their ta advertising the particular emporium which has hired the for the occasion. Motor-car racing is not supposed to be the same class as horse racing or certain other sports whi are looked upon as the property of the nobility and gentr But even at Brooklands cars do not race carrying advertis ments of Coleman's Mustard or Heinz Baked Beans. Ar that is the class of thing to which these Nomination Rac belong.

JOY-RIDING.

After the last race several thousands of the crowd still hu around the railings watching the joy-ride machines ti dark. The two Handley Page W.10s, piloted by Mr. O. Jones and Mr. Robinson, were carrying joy-riders at 10s. 6 a head, as fast as ever they could be loaded into the machin and out again, every minute of the day when joy-ridi could be permitted. 800 passengers were carried in the b weather on Friday and up to the beginning of the R.A. Display in the afternoon of Saturday, 400 passengers had be carried in the intervals between races. One gathers th altogether between 2,000 and 2,500 passengers were carri on the two days. How many were carried on the Sunday well one has yet heard. Anyhow the two machines ce tainly did good work in making the Blackpool visitors a minded.

After the whole meeting was over the prizes were pr sented by the Lady Mayoress on the dance floor of the To Ball-Room. Something like 3,000 people who had paid

AT BLACKPOOL, 1928.—Part of the shilling enclosure, the starting-end of the aerodrome, and the Siskin formation. —(*"Aeroplane" photograph.*)



MISS EARHART buys an AVRO AVIAN

THE Atlantic airwoman followed the example set by Lady Heath and Mr. Bert Hinkler, who both used Avro Avians in their great South African and Australian flights.

The Avro is the best aeroplane for land and sea service training. For flying clubs there is the smaller and lighter Avro Avian, which costs less and is a thoroughly proved, tested and standardised machine.

AV.1.

For particulars write to:
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go there to dance were turned off the floor during the ceremony. But the Lancashire people are always good sportsmen and they cheered the prize-winners enthusiastically. The speeches by the Lord Mayor and Sir Sefton Brancker were commendably brief.

After that the aviating visitors proceeded to make up parties of their own, which one gathers lasted till the small hours of the morning. At any rate one pilot was met at breakfast-time still in evening dress having taken a partner down to the aerodrome for a joy-ride. The R.A.F. machines were to have flown home to their respective aerodromes on Saturday night, but a kind-hearted High Authority gave them leave to stay over till Sunday morning. So the airmen who worked so hard had a Saturday night out in Blackpool. One hopes they enjoyed it.

Coming up to Town by train on the Sunday morning, having joined the *Ulster Express* at Preston, we overtook three machines flying in formation somewhere near Warrington against a strong Southerly wind. They appeared to be night-bombers and have probably got home by now.

The general level of the flying at the show was extremely good. Owner pilots, pupils trained *ab initio* by the Club, Club instructors and the professional pilots of the various firms all showed a very high level of skill. Occasionally competition regulations were ignored, as for example on the Friday when the competitors flew high with the wind and hedge-hopped against it, in spite of the regulation that they must not come below 200 feet owing to the proximity of high-tension wires,—the kindly producers of the regulation adding that flying low near these wires might lead to disqualification or incineration or both.

FEMINISM.

One of the few unpleasantnesses of the meeting concerned a woman pilot who lodged a written protest with the Royal Aero Club officials against being disqualified from competing, in spite of the fact that her disqualification was due to her not having produced her machine in time for official verification, a trifling omission on her part which appears to have been due to her not having attended the meeting of pilots at which the officials explained the regulations of the meeting.

One is all in favour of the feminist movement, but when women impose themselves as competitors with mere men they must stand by the regulations which mere men have to obey. They cannot insist on masculine rights and then clai feminine privileges.

All the same, one must say that most of the aviatresse in this country are thorough good sportswomen and all th men pilots were thoroughly pleased to see Miss Winifre Brown rake in so many prizes. And they were all glad tha Miss O'Brien, after trying so hard for so long, should als win a decent prize. And they were just as sorry that Mis Leathart after winning her heat so well in one race did no get into the first three in the final. Aviatresses of that typ are always welcome. Those who compete on the "win, t or wrangle" principle are not likely to be popular.

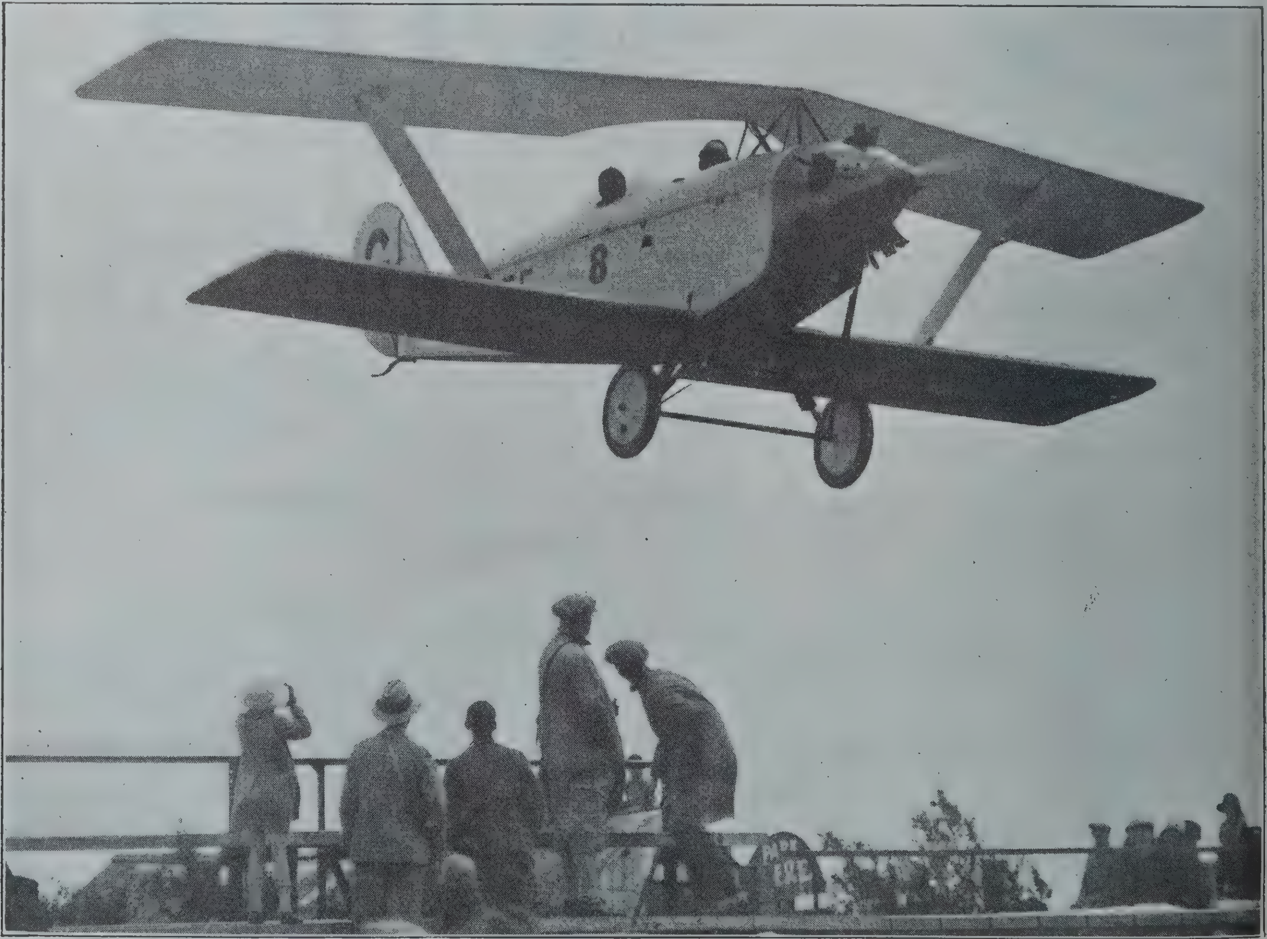
Apropos feminine pilots, there was some little chat abo the proposed so-called scholarships which the Women's Se tion of the Air League is offering. A medical member the Newcastle Club made the brilliant suggestion that h imagined these scholarships to be part of a scheme for gettin rid of the superfluous women of this country.

ENVOI.

Among the pilots themselves balloon-bursting seemed be a particularly popular sport, though it is certainly n spectacular so far as the gate is concerned. Some brillia ideas were suggested for making machines more effectiv as balloon-bursters. One was to set a series of pitot tube along the leading edges of the wings and along the strut with the hind end of the tubes open to create suction an so suck the balloons onto the wings. Somebody else sug gested that a couple of vacuum cleaners on the wing-ti driven off the engine might be better. Another suggestio was that the best way to catch the balloons was to stall th machines on top of the bunch and prick them with a pi Yet another competitor, evidently more accustomed to nig clubs than aerodromes, suggested that a burning cigarett end is a good thing.

Altogether the aviating people at Blackpool quite enjoye themselves. On their behalf one feels justified in thankin the Mayor and Corporation of Blackpool for all that was don to make the visit pleasant.

One gathers that the intention of Blackpool is to have really big municipal aerodrome about half a mile due Ea of the Tower, which is the level of the middle of the tow taking it from North to South. The existing aerodrome far away to the South of the town and not nearly so accessib as the suggested site would be. One hopes that this proje will be put into practice.



AT BLACKPOOL, 1928.—The Parnall Imp (Armstrong Siddeley Genet) coming in over the Eastern end of the aerodrome. —(*"Aeroplane" photograph.*)

The Glories of the
"SALVATOR" PARACHUTE

Nella lunga prova per il record di durata era fido compagno nostro il paracadute «Salvator».

Roma 2 Giugno 1928. Arturo Ferrarin

CINISELLO (Milan): Lieut. Ferrarin jumped with a delayed opening of 300 metres.

TORINO: Record of height—Pilot Donati.

MONTECELIO (Rome): Record of distance—Pilots Ferrarin—Del Prete.

CENTOCELLE (Rome): Major Cuntry, although burned and with the aircraft on fire, was saved.

NOBILE: Maddalena and Penzo dropped supplies with the Salvator parachutes.

MONTECELIO—PERNAMBUCO: World's record — Pilots Ferrarin—Del Prete.

Certainly Blackpool appeals to the working classes more than to the class of person who is a private owner of aeroplanes, and there is very little hotel accommodation in Blackpool for the owner-pilot type of person. But at the same time Blackpool is a very healthy place and it is far enough from London to make a really good air journey, so a good aerodrome plus a good hotel or two might attract a good many aerial visitors,—in time to come when flying is a trifle more popular. At the present time all the owner-pilots together would hardly keep an hotel or an aerodrome going.

However, Blackpool has always been noted for being a long way in front of most seaside places in its organisation of attractions, and what Lancashire thinks to-day England thinks to-morrow, so no doubt the airmindedness of the Blackpool in the Year of Grace 1928 will bear deserved fruit in years to come.—C. G. G.

THE KING'S CUP RACE.

The following particulars have been issued concerning the course for the King's Cup Race on July 20 and 21 :—

The course is 1,096½ miles, starting at Hendon Aerodrome and finishing at Brooklands Aerodrome.

SECTION 1.—Friday, July 20.

London (Hendon Aerodrome), Start.

Controls : Norwich (Mousehold Aerodrome), 99 miles; Birmingham (Castle Bromwich), 132 miles; Nottingham (Hucknall Aerodrome), 43½ miles; Leeds (Sherburn-in-Elmet Aerodrome), 51¼ miles; Newcastle-on-Tyne (Cramlington Aerodrome), 94 miles; Glasgow (Renfrew), 121 miles.

Total Section 1, 540¾ miles.

SECTION 2.—Saturday, July 21.

Glasgow (Renfrew Aerodrome), Start.

Turning Points :—*Silloth* (Solway Firth), 79½ miles. (White Cross on ground close to Lighthouse. Approaching Silloth from the north. Competitors must pass the White Cross leaving it on their *right* at a distance not exceeding 300 yards and at a height of not more than 5,000 feet.) *Blackpool Tower* (Blackpool), 74¼ miles. (Approaching Blackpool from the north, Competitors must pass Blackpool Tower leaving it on their *right* at a distance not exceeding 300 yards and at a height of not more than 1,000 *feet.*)

Controls :—Liverpool (Hooton Park), 36 miles; Bristol (Filton Aerodrome), 124½ miles; Southampton (Hamble Aerodrome), 71 miles; Lympne (Lympne Aerodrome), 103¼ miles; Brooklands Aerodrome (Finish), 67¼ miles.

Total Section 2, 555¾ miles.

Finish of the Race.—The finish of the Race is at Brooklands Aerodrome.

The following are the competitors. The racing number of the machine is followed by the name of the entrant, after which comes the name of the pilot, and then the aeroplane and engine :—

1, Will Hay, F. R. Matthews, S.E.5a, Airdisco.

2, Lieut. L. G. Richardson, R.N., Lieut. L. G. Richardson, D.H. Moth, Cirrus Mark II.

3, Air Commodore J. G. Weir, C.M.G., C.B.E., A. C. H. A. Rawson, Autogiro C.8.L.2, Armstrong-Siddeley Lynx Mark IV, 230 h.p.

4, Wing Cdr. C. D. Breese, A.F.C., Flt. Lt. C. F. Le Poer Trench, H.A.C.11, Bristol Cherub, Mark III.

5, Alan Samuel Butler, A. S. Butler, D.H. Moth X, D.H. Gipsy.

6, Sir Charles Wakefield, Bart., Capt. H. S. Broad, D.H. Moth G, D.H. Gipsy.

7, W. Lawrence Hope, W. Lawrence Hope, D.H. Moth G, D.H. Gipsy.

8, Norman Jones, Norman Jones, D.H. Moth X, Cirrus Mark II.

9, Flt. Lt. F. O. Soden, D.F.C., Flt. Lt. F. O. Soden, D.F.C., D.H. Moth, Armstrong-Siddeley Genet I.

10, J. Parkinson, J. C. Cantrill, Avro Avian IIIa, Cirrus Mark II.

11. A. C. M. Jackaman, A. C. M. Jackaman, D.H. Moth X, Cirrus Mark II.

12, Alan S. Butler, A. S. Butler, D.H. Moth X, Cirrus Mark II.

13, "Harold Brooklyn," "H. Brooklyn," Westland Widgeon III, Armstrong-Siddeley Genet II.

14, R. A. Bruce, Colonel The Master of Sempill, Westland Widgeon, Cirrus Mark II.

15, Major A. A. Nathan, Wing Cdr. S. W. Smith, D.H. Moth X, Cirrus Mark II.

16, R. A. Whitehead, R. A. Whitehead, Baby Avro, Cirrus Mark I.

17, P. N. G. Peters, Flt. Lt. R. L. Ragg, A.F.C., Avro Avian, Cirrus Mark II.

18, G. C. Parnall, Flg. Off. D. W. Bonham-Carter, Parnall Imp, Armstrong-Siddeley Genet II.

19, T. O. M. Sopwith, C.B.E., Flt. Lt. P. W. S. Bulman, M.C., A.F.C., Hawker Heron, Bristol Jupiter VI.

AT BLACKPOOL, 1928.—The Lancashire Aero Club's "multi-place" Avro. —("Aeroplane" photograph.)

20, H. J. Thomas, Sq. Ldr. A. G. Jones-Williams, Bristo 83E, Bristol Titan Mark I.

21, Sir George Stanley White, C. F. Uwins, Bristol 10 Bristol Jupiter Mark VIa.

22, H. J. V. Ashworth, Bernard Martin, Avro Avian, Cirru Mark II.

23, D. Longden, Flg. Off. R. L. R. Atcherley, R.A.F Gloster Grebe, Armstrong-Siddeley Jaguar.

24, G. N. Warwick, G. N. Warwick, A.N.E.C. IV, Arm strong-Siddeley Genet.

25, M. A. Lacayo, M. A. Lacayo, D.H. Moth, Cirrus Mar II.

26, Robert Blackburn, Sq. Ldr. J. Noakes, A.F.C., M.M Blackburn Lincock, Armstrong-Siddeley Lynx IV.

27, O. E. Simmonds, Flt. Lt. S. N. Webster, A.F.C Simmonds Spartan, Cirrus Mark II.

28, R. L. Preston, Flg. Off. L. S. Birt, Blackburn Blu bird, Genet II.

29, R. G. Cazalet, R. G. Cazalet, Westland Widgeon II Cirrus Mark II.

30, H. M. Yeatman, H. M. Yeatman, D.H. Moth, Cirr Mark I.

31, W. Newton, G. E. F. Boyes, Avro Avian IIIa, Armstron Siddeley Genet II.

32, A. V. Roe, Flt. Lt. F. L. Luxmoore, D.F.C., Avr Avenger, Napier Lion Mark IX.

33, A. V. Roe, Capt. E. W. Percival, Avro Avian, Cirr Mark II.

34, A. V. Roe, H. A. Brown, Avro Avian, Cirrus Mar II.

35, Lieut.-Col. M. O. Darby, O.B.E., T. Neville Stac A.F.C., D.H. Moth X, Cirrus Mark II.

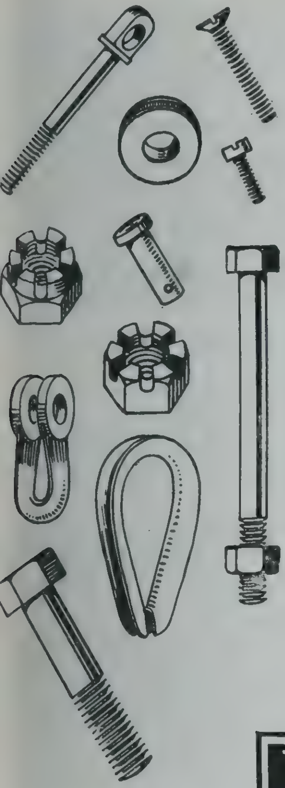
36, Lieut.-Col. John Barrett-Lennard, C.B.E., Sq. Ld H. W. G. Jones, M.C., A.D.C. Martinsyde, A.D.C. Nimbus.

37, Miss W. E. Spooner, Miss W. E. Spooner, D.H. Mot Cirrus Mark I.

38, Capt. C. B. Wilson, M.C., E. E. Stammers, D.H. Mot Cirrus Mark I.

Of the foregoing machines the following are competing i the *Siddeley Trophy Tour* :—

Lieut. L. G. Richardson, R.N. (London Aeroplane Club D.H. Moth. Flt. Lt. C. F. Le Poer Trench (Halton Aer Club), H.A.C.II. Norman Jones (London Aeroplane Club D.H. Moth X. Flt. Lt. F. O. Soden, D.F.C., D. H. Mot A. C. M. Jackaman (London Aeroplane Club), D. H. Moth "Harold Brooklyn" (Halton Aero Club), Westland Widgeo III. R. A. Whitehead (Southern Aeroplane Club), Baby Avr Flt. Lt. R. L. Ragg, A.F.C. (Royal Aircraft Establishme Aero Club), Avro Avian. Flg. Off. L. S. Birt (Suffolk an Eastern Counties Aeroplane Club), Blackburn Bluebir R. G. Cazalet (Midland Aero Club), Westland Widgeon II H. M. Yeatman (Hampshire Aeroplane Club), D.H. Mot Miss W. E. Spooner (London Aeroplane Club), D.H. Mot E. E. Stammers (London Aeroplane Club), D.H. Moth.



THREE NOTABLE FLIGHTS.

The fact that Rubery, Owen accessories were used on Sir Alan Cobham's machine in his flight to Australia and back; in Lieut. Webster's machine in which he won the Schneider Cup, and in Capt. Hinkler's Avro "Avian" machine in which he made his remarkable flight from England to Australia, is in itself sufficient evidence of the outstanding quality of these products.

Le fait que des accessoires Rubery, Owen ont été utilisés pour l'appareil de Sir Alan Cobham dans son vol à l'Australie et retour; pour l'hydravion du Lieut. Webster à bord duquel il gagna la Coupe Schneider, et pour l'avion Avro "Avian" due Cap. Hinkler avec lequel il exécuta son vol remarquable d'Angleterre en Australie, est en lui même une preuve suffisante de la qualité éminente de ces produits.

El hecho que los accesorios Rubery, Owen han sido utilizados para el aparato de Sir Alan Cobham en su vuelo a Australia y regreso; para el hidroavión del Teniente Webster a bordo del cual ganó la Copa Schneider, y para el avión Avro "Avian" del Cap. Hinkle con el que ejecutó su vuelo notable de Inglaterra a Australia, es en sí mismo una prueba suficiente de la calidad sobresaliente de estos productos.

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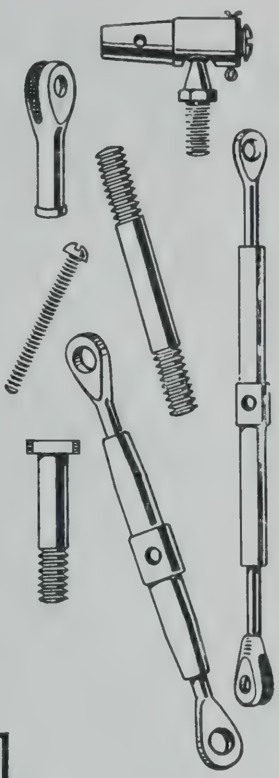

FAMOUS AIRCRAFT

USING A AND P COLD DRAWN WELDLESS STEEL TUBES

The Short "Singapore" is the first All-metal Flying Boat designed by British Constructors, and represents developments following the production, by Messrs. Short Brothers, of Rochester, of a metal hull to the order of the Air Ministry, in 1924. Sir Alan Cobham used this machine for his African Survey Tour. It is fitted with twin Rolls "Condor" IIIA water-cooled engines, each developing 700 h.p. at 2,000 r.p.m., and it can be flown with full load on one engine. First flown in August, 1926, it has since undergone successful trials at the M A E E, Felixstowe.

A AND P TUBES ARE USED

SIR ALAN COBHAM IS TO BE CONGRATULATED UPON HIS WONDERFUL AFRICAN FLIGHT OF SURVEY, AND WE ARE PLEASED TO BE ASSOCIATED WITH THIS ACHIEVEMENT. Sir Alan has telegraphed us to the effect that "all steel tubes fitted to the Short Rolls Royce flying boat stood up perfectly to the trying tests of varying temperatures and great strain."

ACCLES & POLLOCK,
LIMITED

OLDBURY BIRMINGHAM

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending July 8.

Flying Time 47 hr. 5 min. *Instruction* 25 hr. 35 min. *Soloists* 21 hr 30 min. *Soloists.*—Messrs. J. J. Hofer, J. H. Brewster, F. C. Fisher, J. C. V. K. Watson, S. Nesbitt, G. Larden, E. R. Andrews, P. A. Wills, R. Sanders Clark, P. W. Hoare, H. M. Samuelson, J. H. Saffery, E. E. Stammers, Will Hay, Major R. M. S. Veal, Major K. M. Beaumont. *Instruction.*—Miss H. Cholmondeley, Miss Wilson, Miss Hicks, Mrs. Thatcher, Messrs. R. S. Rattery, E. H. Thierry, J. Bickley, E. G. Amsden, L. Rowson, J. Eden, H. W. Marlow, A. C. Collins, P. A. Wills, W. Hart, C. W. Bonniksen, D. H. M. Symon, J. R. A. Stroyan, B. Carey, R. Maurice, B. I. Middleton, E. A. Lingard, A. C. Thomas, H. R. Presland, G. Larden.

King's Cup and Siddeley Trophy Tour.—The first competitor will leave Hendon Aerodrome at 08.00 hr. on Friday morning, July 20. *Members of the London Aeroplane Club will be admitted free to Hendon Aerodrome* on production of their Membership Badges.

Finish at Brooklands.—The finish of the Race will take place at *Brooklands Aerodrome,* on July 21, and the winner is expected to arrive at about 17.00 hr. The Junior Car Club 200 mile Race is taking place at Brooklands the same afternoon, and the Royal Air Force will give Displays during the afternoon. *Members will not be admitted free* to Brooklands Aerodrome. The charge for admission will be:—Public Enclosure, 3s. Paddock and Reserved Parts, 10s.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending July 4.

Flying Time 20 hr. 50 min. *Instruction* 4 hr. 15 min. *Soloists* 4 hr. 45 min. *"A" Pilots* 8 hr. 45 min. *Passengers* 2 hr. 20 min. *Tests* 45 min. *Instruction.—With Mr. J. D. Parkinson*—Mrs. Kish, Miss Slade, Messrs. Carr, Maxwell, Lawson, Walker, Vernon Heaton, Runciman (Secondary). *Soloists.*—Messrs. Jackson and Maxwell. *"A" Pilots.*—Messrs. Irving, Todd, H. Ellis, W. B. Ellis, Heppell, Turnbull, Leech, A. H. Bell, R. N. Thompson, Dr. Dixon, Mr. C. Thompson. *Passengers.—With Mr. Parkinson*—1. *With Mr. Leach*—1. *With Mr. A. H. Bell*—1.

We are pleased to report that on Wednesday Mr. A. Maxwell successfully carried out the tests for his "A" Licence. On Thursday the Club's three Moths, accompanied by Miss Leathart on the Grasshopper, left for Blackpool Flying Meeting. We take this opportunity of congratulating Dr. Dixon on his very fine performance in winning the Inter-Club Members' Race. All the Club members who attended the Blackpool Meeting appeared to enjoy themselves to the full.

The Yorkshire Aeroplane Club.

[Sec.: Lt.-Col Walker, Sherburn-in-Elmet.]

Report for week ending July 8.

Flying Time 32 hr. 40 min. *Instruction* 7 hr. 40 min. *Soloists* 24 hr. 10 min. *Passengers* 1. *Instruction.—With Mr. Beck*—Messrs. Lievans, Parks, Bell, J. Blackburn, Evans, Wilton, A. Crowther, Brown, Rowley, Watson, Dujardin, Ellison, Wayman, Fitton. *Soloists.*—Messrs. Dick and Reynolds. *"A" Pilots.*—Messrs. Ellison, Dawson, A. Crowther, H. Crowther, Lister, Thomson, Birch, Humpheries, Ambler, R. Lax, Wilson, Clayton, Norway, Wood. *"B" Pilot.*—Mr. Fielden. *Passengers.*—6.

At home we have had an uneventful week, and on Thursday proceeded to Blackpool for the Northern Pageant. The high winds prevailing on Friday made it impossible for our little Bluebirds to keep pace with their slimmer rivals.

On Tuesday last Mr. Reynolds executed his "A" Licence tests with remarkable skill considering the time he has been with the Club.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Report for week ending June 30.

Flying Time 26 hr. 37 min. *Instruction* 10 hr. 31 min. *Soloists* 6 hr. 50 min. *Passengers* 7 hr. 46 min. *Tests* 1 hr. 30 min. *Instruction.—With Flt. Lt. T. Rose, D.F.C., and Mr. W. H. Sutcliff*—Messrs. H. P. Haylock, J. Cobb, M. Turner, G. E. C. Hill, H. Tipper, E. L. Richards, T. H. Drury, H. Coleman, S. Nesbit, W. Westwood, F. I. Steward, H. Lattey, R. Summerfield, M. A. Murtagh, A. W. Roberts. *Soloists.*—Messrs. E. P. Lane, R. L. Jackson, O. L. Richards, E. D. Wynn, W. Swann, W. M. Morris, J. Rowley, S. Nesbit, H. J. Willis, C. W. Fellowes, E. J. Brighton, S. H. Smith, R. C. Baxter. *Passengers.*—6.

On Monday Mr. S. Nesbit passed all tests for his "A" Licence.

Report for week ending July 7.

Flying Time 26 hr. 24 min. *Solo Instruction.—With Flt. Lt. Rose, D.F.C., and Mr. Sutcliffe*—19. *Dual Instruction.*—12. *Passengers.*—5.

On Thursday Flt. Lt. T. Rose flew LT to Blackpool.

The total flying time for June was 143 hr. 26 min.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, The Aerodrome, Hamble.]

Report for week ending July 7.

Flying Time 18 hr. 45 min. *Instruction* 11 hr. 55 min. *"A" Pilots* 5 hr. 5 min. *Soloists* 55 min. *Passenger Flights* 25 min. *Tests* 25 min. *Instruction.—With Flt. Lt. Swoffer*—15. *"A" Pilots.*—4. *Soloists.*—1. *Passengers.*—1.

The weather has been unkind to us, and when it was possible to fly our last machine was placed on its nose on the aerodrome. Mr. Watson had landed and lost his prop., and apparently when trying to catch it he opened the throttle, and left it open. He started up the engine again, and the result may well be imagined. He attempted to stop it and was seen to disappear under the plane, when the machine was upside down. Someone said Watson was hurt and thought he heard the chief instructor say he hoped he was, but this has been denied. The Avian engine was having a complete overhaul, and so we became a non-flying club. This was unfortunate, as we were unable to send a machine to Blackpool to compete in the events there. The ground engineer by working day and night managed to let us have the Avian again by Saturday.

Major de Bernardi, of the Italian Air Force, has been in Hamble, and flew the Avro Avenger, this was not exciting enough apparently for he came to the club and flew the Moth.

Mr. Scott-Hall successfully did his height test for his "A" Licence. He has not offered to buy us a new Moth!!!

Members of this Club are keenly interested to note that a myster Light Aeroplane has been entered for the King's Cup Race by M O. E. Simmonds, our Managing Director. It is understood that thi aircraft has been designed on original lines and contains severa features which are quite new. It has been designed and constructe entirely by Mr. Simmonds and we believe that its appearance wi cause great interest in flying circles. The machine is known as th Spartan and is fitted with a Mark 2 Cirrus engine. Further detai are not available at the moment as the machine has been con structed under conditions of such secrecy that until a day or two ag not half a dozen people knew that Mr. Simmonds was at it.

Another of our Members, Capt. H. M. Yeatman, has entered hi Moth for the Siddeley Trophy Tour and we wish both these gentleme the best of luck.

Flying Time for June 122 hr. 25 min. *Instruction* 37 hr. 45 mi *"A" Pilots* 42 hr. 15 min. *Soloists* 25 hr. 55 min. *Passenger Fligh* 13 hr. 25 min. *Tests* 13 hr. 5 min.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending July 7.

Flying Time 32 hr. 40 min. *Instruction.—With Mr. Young*—Messr C. Ransome, A. Richardson, C. Mills, A. Marshall, A. Harvey, Kirkby, D. Corsellis, C. Ansitis, A. Finch, T. Image, H. Neav *Soloists.*—Messrs. G. Barker, A. Marshall, E. Varden Smith, E. Lam bert, R. Harmer, A. Cooper, W. Ramsay, F. Gough, G. Surtees, Clarke, R. Moore, A. G. Lofty, A. Pank, W. Cubitt, R. Potter, Neave, N. Brett. *Passengers.*—13.

Messrs. Gough and Surtees flew to Blackpool. Yes, they reall did it all on their own, fighting against fearful odds, forty-an-hou gales, rain-storms, landings for "tea"(?), etc., included, and the arrived there. Well done, pilots brave. Just to imagine these tw warriors carried the Club's colours and flaunted them on high o' hill o'er dale up to Blackpool and back again.

Messrs. Marshall and Neave executed thrilling first solos this wee fine display of flying too, and both are now eligible to enter in the Pilots' "Holy of Holies." There is only one grouse we ha against Neave, he artfully made his first landing round the corner, to speak. There is a big mound in this aerodrome and he very car fully selected a spot behind this mound on which to sit down.

We are going over in full war paint on Thursday next to Thetfo and we can tell you Thetford is going to be severely shaken wi the flying feeling. Suffolk Club is going to co-operate and it's goi to be written down in the annals of Ancient Thetford as their fine Civic Week show.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Maj. P. L. Holmes, D.S.C., The Aerodrome, Hadleigh, Suffolk

Report for week ending July 7.

Flying Time 15 hr. 20 min. *Instruction* 9 hr. 30 min. *"A" a "B" Pilots* 2 hr. 15 min. *Soloists* 1 hr. 25 min. *Passenger Fligh* 1 hr. 25 min. *Tests* 45 min. *Passengers.—With Mr. Lowdell*—7. I struction.—Dr. Mildred Yate, Mrs. Young, Miss W. Edwards, Dunn, Mrs. Goodwin, Messrs. Billinton, Wedd and Peck. *Soloists (und instruction).*—Messrs. Billinton and Peck. *"A" and "B" Pilots* Mr. Schofield.

This report only covers the period up to Wednesday evening. Thursday Mr. Prentice and Dr. Sleigh, flying RE, and Mr. Lowd in SZ, left for the Blackpool Flying Pageant.

On Thursday next the Club is co-operating with the Norfolk a Norwich Club in an Air Display at Thetford.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. F. G. Crawford, Filton Aerodrome, Bristol.]

Report for week ending July 7.

Detailed report of flying hours and members under instruction, e will be forwarded next week.

On Thursday Mr. E. B. W. Bartlett left in G-EBTV for the Bla pool Pageant, where we were pleased to hear he won the Instructo Individual Aerobatics Competition. Mr. Downes-Shaw left on Sat day morning for Blackpool in G-EBST.

Our new Moth with slotted wings arrived on Saturday, 7th, and J. E. Tratman, who was instructing that afternoon, was very pleas

The Cinque Ports Flying Club.

[Sec.: R. Dallas Brett, 114, High Street, Hythe.]

Report for week ending July 7.

Flying Time 17 hr. *Test Flight* 10 min. *Instruction.—With M Clarke*—Miss Allen, Miss Tagart, Mr. S. Glynn, Mr. Evernden, Gunner, Mr. Boys, Mr. Story, Mr. Edgson Wright, Mr. Swinna Capt. Took. *Soloists.*—Mr. Douglas, Mr. Story, Mr. Edgson Wrig Mr. R. Dallas Brett, Capt. G. E. Took. *Joyrides.—With Maj. Clark* 12.

On July 1, Mr. Edgson Wright, an ex-R.F.C. pilot, completed tests for "A" licence and was followed by two *ab initio* pupils, Story of Hythe and Mr. R. Dallas Brett of Hythe.

On July 2, another *ab initio* pupil, Lt. A. V. C. Douglas, of Guards' Depot, Canterbury, completed his tests. Mr. Douglas up an exceedingly good performance under some difficulties, ow to low clouds and the presence of a strange Moth which baul him as he was coming in to land. All these four members passed their *viva voce* examination in Air Navigation, etc. We reg this as a very good performance after six weeks' work.

On July 4, the aerial golf match between Mr. Edgson Wright partner and two members of the Ashford Golf Club, took place, a course of six holes. We are glad to report that the Club won match by one stroke, Mr. Wright's "drop shots" being accurate.

Visitors during the week included Miss S. O'Brien in her M OS, and Dr. Merton, in his slotted Moth QZ, also a very smart M belonging to the Communications Squadron, R.A.F.

On Saturday, July 7, Capt. Took was tactless enough to taxi Moth along the ground at a great velocity into one of the manent hangars on the aerodrome. The hangar proved to be more permanent than the Moth, which looks uncommonly lik total "write off." Fortunately Capt. Took stepped out unhurt.

The Winnipeg Flying Club.

Report for week ending June 17.

The report for the week ending June 17 shows 25 hr. 18 min. fly ights for the week were 347, making a total of 1,005 in the three eks since the Club commenced operations.

Of the flying time 22 hr. 43 min. was dual control work under de Blicquy, instructor, by Miss Magill and Messrs. Alleyn, Brookes, adbrooke, Crosby, Fraser, Furnival, George, Grainger, Huggard, ckland, Haldane, McRorie, Moore, Patterson and Thomas.

Just over two hours of solo flying was done by Messrs. Crabbe, raith, Huggard and Morgan. Member passengers for the week were rs. Cook, Mrs. Crabbe and Mr. Partridge.

Total incidents in the three weeks were: one flat tyre, one forced nding caused by a flaw and breakage in No. 8 rocker arm on the gine, slight damage to the rudder from stretching of the tail-skid ring, replacement of one centre-section bolt.

During the early morning period on June 16 the machine is thought have struck a rock in the long grass while landing or taking off. ight damage was discovered at the extreme rear of the fuselage hen the daily check was made. Repairs were completed and the achine was flying again by June 19.

FLYING SCHOOLS.

The De Havilland Flying School.

Report for week ending July 8.

Flying Time 165 hr. 40 min. *Instruction.—Dual*—90 hr. 30 min. *olo*—41 hr. 55 min. *Other Flying.*—33 hr. 15 min.

We have now begun a busy period, and in consequence two new Moths have been placed on the School and the services of a new nstructor have been secured.

The School has now eight Moths, five Jaguar D.H.9Js, and six Inructors at its disposal, together with a most up-to-date Pavilion nd Lecture Room.

During the week four pupils including Sir Pyers Mostyn, the Hon. . F. Tennant and Mr. W. Coker Iliffe carried out excellent first olos.

Our new arrivals this week, include many University Undergraduates nd five Indian Government pupils.

Twelve new Moths were tested, and amongst purchasers who took elivery this week, were Lady Heath and Major A. A. Nathan.

Moths were again greatly in evidence at the Blackpool Air Pageant nd secured many valuable events.

A notable visitor to Stag Lane this week was Herr Fieseler, the amous German stunt pilot.

The Henderson Flying School.

[Managing Director: Lt.-Col. G. L. P. Henderson, Brooklands Aerorome, Byfleet.]

Report for week ending July 6.

Flying Time 36 hr. *Instruction.—With Col. G. L. P. Henderson*—Messrs. Brooks, Bennett, Groner. *With Mr. H. D. Davis*—Miss Wellby, Major Parkin, Messrs. Matos, Davies, Knox, Groner, Norbury, Jager, Dr. Taylor.

Over 200 passengers were carried during the week.

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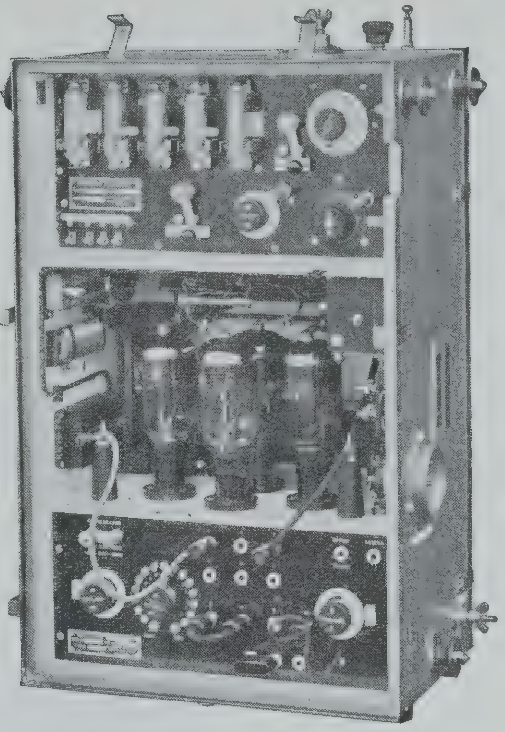

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR WEEK ENDING JUNE 30.

Trips per Day.—Sunday, 14; Monday, 34; Tuesday, 22; Wednesday, 42; Thursday, 33; Friday, 36; Saturday, 41.

IMPERIAL AIRWAYS LTD. :
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return : Machines 89, passengers 819, freight 21 tons.
AIR UNION :
Paris—London : Machines 46, passengers 278, freight 12 tons.
K.L.M. :
Amsterdam—Rotterdam—London : Machines 26, passengers 204, freight 6 tons.
SABENA :
Brussels—London : Machines 15, passengers 70, freight 2 tons.
DEUTSCHE LUFTHANSA AG. :
Amsterdam—London : Machines 25, passengers 45, freight 2 tons.
PRIVATE :
Machines 14, passengers 28.

Total number of trips by British Machines, 96, carrying 835 passengers. Foreign machines, 126, carrying 609 passengers.

COMPARATIVE FIGURES.

Week ending June 30 :
Machines, 222; Passengers, 1,444; Crews, 421; Total personnel; 1865.
Corresponding week, 1927 :
Machines, 168, Passengers, 1,130; Crews, 301; Total personnel, 1,431.
Corresponding week, 1926 :
Machines, 260; Passengers, 1,113; Crews, 218; Total personnel, 1,331.
Corresponding week, 1925 :
Machines, 162; Passengers, 724; Crews, 208; Total personnel, 932.
Corresponding week, 1924 :
Machines, 160; Passengers, 632; Crews, 197; Total personnel, 829.
Corresponding week, 1923 :
Machines, 120; Passengers, 571; Crews, 195; Total personnel, 766.
Corresponding week, 1922 :
Machines, 104; Passengers, 296; Crews, 156; Total personnel, 452.
Corresponding week, 1921 :
Machines, 102; Passengers, 331; Crews, 127; Total Personnel, 458.
Corresponding week, 1920 :
Machines, 90; Passengers, 138; Crews, 10; Total personnel, 248.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 12; Monday, 36; Tuesday, 30; Wednesday, 28; Thursday, 38; Friday, 35; Saturday, 41.

IMPERIAL AIRWAYS LTD. :
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return : Machines 92, passengers 805, freight 25 tons.
AIR UNION :
Paris—London and return : Machines 53, passengers 347, freight 14 tons.
K.L.M. :
Amsterdam—Rotterdam—London and return : Machines 37, passengers 206, freight 6½ tons.
SABENA :
Brussels—London and return : Machines 21, passengers 13, freight 3 tons.
DEUTSCHE LUFTHANSA AG. :
Amsterdam—London and return : Machines 21, passengers 69, freight 3 tons.
PRIVATE :
Machines 115, passengers 33

Total number of trips by British Machines, 99, carrying 816 passengers. Foreign Machines, 131, carrying 726 passengers.

COMPARATIVE FIGURES.

Week ending July 7 :
Machines, 230; Passengers, 1,542; Crew, 447; Total personnel, 1989.
Corresponding week, 1927 :
Machines, 168; Passengers 1,048; Crews, 310; Total personnel, 1,358.
Corresponding week, 1926 :
Machines, 161; Passengers, 1,051; Crews, 207; Total personnel, 1,258.
Corresponding week, 1925 :
Machines, 172; Passengers, 851; Crews, 222; Total personnel, 1,073.
Corresponding week, 1924 :
Machines, 173; Passengers, 741; Crews, 214; Total personnel, 955.
Corresponding week, 1923 :
Machines, 111; Passengers, 542; Crews, 185; Total personnel, 727.
Corresponding week, 1922 :
Machines, 145; Passengers, 326; Crews, 235; Total personnel, 561.
Corresponding week, 1921 :
Machines, 115; Passengers, 426; Crews, 143; Total personnel, 569.
Corresponding week, 1920 :
Machines, 108; Passengers, 232; Crews, 126; Total personnel, 359.

NEW AUSTRALIAN EQUIPMENT.

The Australian Government has decided to re-equip Nos. 1 and 3 Squadrons, R.A.A.F., stationed at Laverton, Victoria, and Richmond, N.S.W., respectively, with 32 new aircraft of the General Purposes type at a total cost of £150,000.

Rumour says that the types chosen are the D.H. Hound and the Westland Wapiti both with Bristol Jupiter engines.

A NEW DURATION RECORD.

On July 5 Herrn. Risticz and Zimmermann took off fron Dessau aerodrome on a Junkers monoplane (320 h.p. Junker L-5 engine) in an attempt to beat the World's Duration Record.

They landed at about 21.30 hrs. on July 7 after having remained in the air for 65 hrs. 26 mins., during which tim they covered a distance of 8,100 kms. (5,034 miles).

A NEW DISTANCE RECORD.

On July 3 Capt. Arturo Ferrarin and Major del Prete lef Montecelio aerodrome, Rome, on a Savoia S.64 (550 h.p. Fia A.22 engine) in an attempt to beat the World's Record fo distance covered in a straight line.

On the following day they were seen to pass over Gibraltar Casablanca, Rio de Oro and Cape Verde Islands.

On July 5 wireless signals from the S.64 were picked u by the British steamer *Silarus* and relayed to the Brazilia coast. At 15.15 hours the following direct message wa picked up at Pernambuco : "Arriving Brazil we send salutations."

At 16.00 hrs. they sighted the Brazilian coast and tried t set a course for Bahia, but owing to low clouds and genera bad weather they were forced to turn north, where condition were better. They were unable to find the Latécoère aerodrome at Port Natal and while searching for a suitable landing place they ran out of petrol. They were forced to lan on a sandy beach at Touros, 60 miles north of Port Natal, an in so doing the wheels sank into the sand slightly damagin their landing gear.

On July 6 an aeroplane belonging to the Latécoère Company picked them up at Touros and flew them to Port Nata where they received an enthusiastic welcome.

The total distance covered in this flight was approximatel 5,000 miles.

Readers will remember that on May 31—June 2, the sam two pilots flying in the same machine established a World' Duration Record over a closed circuit by remaining in th air for 58 hrs. 37 mins. during which time they covered distance of 8,100 km. (5,062 miles approx.). This record ha since been beaten by two German pilots.

THE LOWENSTEIN AFFAIR.

On July 5, Mr. Alfred Lowenstein, the Belgian financie who has achieved a considerable amount of notoriety fo keeping a whole fleet of aircraft not only for his own pe sonal convenience but for guests, secretaries and even urge dispatches, was crossing the Channel from Croydon t Belgium when he disappeared over the Channel.

Mr. Lowenstein was accompanied by his secretary, tw typists and a valet. He left the cabin, presumably to g to the lavatory, and as he did not appear for ten minute the secretary went to find him and was unable to do so. M Drew, the pilot, on being informed of Mr. Lowenstein' absence, turned the machine round and searched the se over the spot where Mr. Lowenstein might have fallen. A there was nothing to be seen he landed the machine a Dunkirk and on the following day returned to Croydon

Mr. Lowenstein's financial activities have been so muc discussed in the daily Press that there is no need to dea with them here.

Naturally all kinds of theories have been put forward a to how he left the machine. There seems to be no goo reason why he should have committed suicide. There is theory that on coming out of the lavatory he lurched again the door of the machine and fell out. That seems to be u likely because experiments tried in the machine have show that although the door could be opened a few inches with a ordinary push, the force of the air was such that a very co siderable effort would have been necessary to open it wid enough for anyobdy to fall out.

An interesting point is that comparatively recently larg insurance policies have been taken out covering the death Mr. Lowenstein and one has been told that certain of thes policies specifically include suicide.

A PAYING PROPOSITION.

Imperial Airways' Argosy G-EBLF, after its flight to Edinburgh in parallel with the L.N.E.R. Flying Scotsman o June 15, spent Saturday and Sunday, June 16 and 17, a Renfrew Aerodrome, just outside Glasgow, and spent thes

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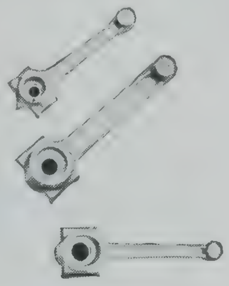

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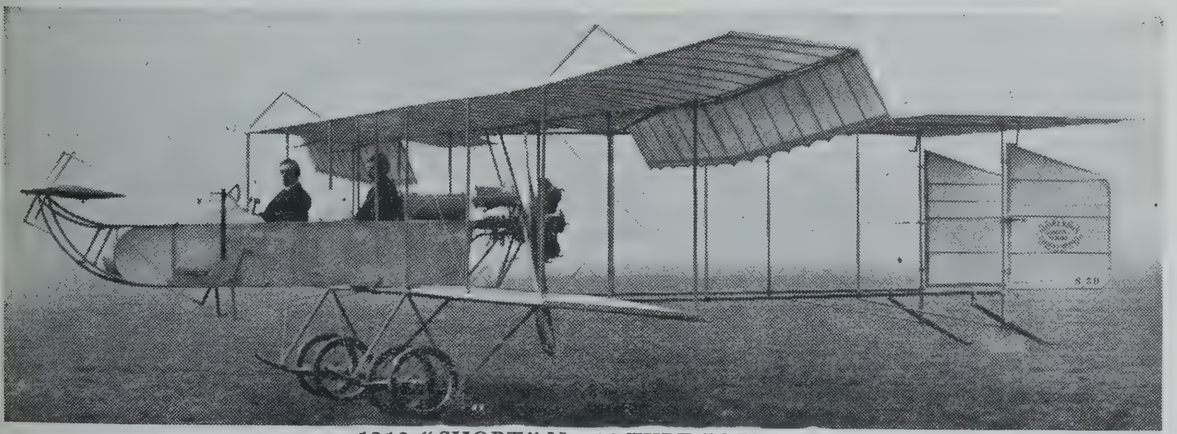

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C61-60
Cellon (Richmond) Ltd., Cellon Works, Petersham Road, Richmond, Surrey.

two days in giving the local inhabitants half-guinea joy-rides. In these two days the machine made 105 flights with its full load of 20 passengers on practically every flight.

Of a total of 2,100 passengers so carried less than 50 were complimentary and non-paying, so that the machine must have earned over £1,000 on this occasion.

There is difficulty in knowing whether to admire most the endurance and skill of the pilot, Mr. Jones, who made the 105 take-offs and landings, the reliability of the Argosy and its engines which endured them without the least trouble, or the enthusiasm of the passengers.

AERO-ENGINE ENTERPRISE IN CANADA.

In view of the alleged indifference of British Aircraft manufacturers to Overseas requirements it is worth noting that Armstrong Siddeley Motors Ltd. are exhibiting at the Montreal Aviation Exhibition. This action follows on the opening of an Armstrong Siddeley aero-engine branch in Canada.

Armstrong Siddeley Motors Ltd. deserve to reap a rich reward for their enterprise. And they have the advantage of having, in the Lynx engine the only aero-engine in the Whirlwind class plus the fact that the Lynx gives more power than the Whirlwind, is lighter and is cheaper.

NEW COMPANIES.

MIDLAND AERO FLIGHTS LTD.—Private Co. Registered July 4. Capital, £2,000 in £1 shares. Objects: To carry on the business of proprietors of aeroplanes and aerial conveyances, carriers of passengers for pleasure or commercial purposes, etc. The first directors (to number not less than 2 nor more than 5) are: H. Oldfield, 4, Blenheim Road, Moseley, Birmingham, manufacturer's agent (managing director). H. D. Hands, 14, Woodfield Road, Kings Heath, Birmingham, stockbroker. Solicitor: W. Kentish, 31, Temple Row, Birmingham.

AERONAUTICAL FINANCE AND INVESTMENT TRUST.—Aeronautical Finance and Investment Trust Ltd. was registered as a "private" company on July 4, with a nominal capital of £100 in 2s. shares. The objects are to develop, stimulate and finance the aeronautical industry and promote the advance of aeronautical science and research, etc. The directors are: L. A. Wingfield, 3c, Grove End Road, N.W.3. H. M. Whitehead, 9, Sussex Square, Brighton, Sussex. Solicitors: Wingfields, Halse and Trustram, 61, Cheapside, E.C. The registered office is at 61, Cheapside, E.C.2.

AIRCRAFT AND UNIVERSAL SIGNS LTD.—Private Co. Registered June 29. Capital, £1,000 in £1 shares. Objects: To acquire from F. C. Armstrong and E. A. Houchin the benefit of a certain invention relating to advertising, and to carry on the business of designers and manufacturers of and dealers in electric, magnetic, revolving, changeable, moveable, coloured, illuminated and other advertising signs, etc whether to be used on or in connection with aeroplanes and other ai craft, etc. The first directors are: A. Allistone, Rosebank, Chertse Lane, Staines, solicitor (chairman). F. C. Armstrong, 39, Somers Road, North Harrow, engineer. Lt.-Col. E. A. Houchin, Essex Hous 1, Stanwick Road, West Kensington, surgeon. (All permanent Solicitor: A. Allistone, 2, Clement's Inn, W.C.2. Registered office 2, Clement's Inn, W.C.2.

PERSONAL NOTICES.

DEATHS.

KAY.—On July 4, at Mosul, as the result of a flying acciden Alexander Bruce Kay, Flg. Off., R.A.F.

Mr. Kay passed out of the R.A.F. Cadet College, Cranwell, in Jul 1924, and was posted to No. 4 (Army Co-operation) Sqdn. He was pr moted to be Flying Officer in January, 1926, and posted to No. 6 (Arm Co-operation) Sqdn. in December, 1926.

LAWSON.—On Saturday, June 16, killed in flying accident at Avi tion Field, Winnipeg, Major Walter Brogdin Lawson, D.F.C., late 48t Highlanders of Canada and R.A.F., son of the late James F. Lawso of Ridgemere, Barrie, Ontario, in his 36th year.

MASON.—On July 3, at Quetta, India, as the result of a flyir accident, L-AC. James Leslie Mason, R.A.F.

McEVOY.—On July 3, at Quetta, India, as the result of a flyir accident, Clarence Reginald McEvoy, Flg. Off., R.A.F.

Mr. McEvoy entered the R.A.F. with a S.S. comn. in Septembe 1925, and after a course of flying training at No. 5 F.T.S., Sealan was posted to the Electrical and Wireless School, Flowerdown. I April, 1927, he was posted to No. 16 (Army Co-operation) Sqdn., and January, 1928, he was posted to No. 31 (Army Co-operation) Sqdn., India. He was promoted to be Flg. Off. in February, 1928.

SHIELLS.—On July 7, at Corstorpine, Scotland, as the result of flying accident, John Temple Lyall Shiells, Plt. Off., Auxiliary Air Forc

FORTHCOMING MARRIAGE.

COOK—McENNERY.—An engagement is announced between Flt. I A. F. Cook, R.A.F. (Medical Service), elder son of Mr. and Mrs. C. Cook, of Kingstown, County Dublin, and Miss Phyllis McEnnery, eld daughter of Mr. and Mrs. Lionel McEnnery, of 85, Palmerston Roa Dublin.

BIRTHS.

BROOKE-POPHAM.—On July 8, at Riverdale, Cowley, Uxbridge, Opal, wife of Air Vice-Marshal Sir Robert Brooke-Popham—a son.

KING.—On June 23, at Cranwell, Lincs., to Violet (*née* Wood), wi of Flt. Lt. King, R.A.F.—a daughter.

ROBINS.—On June 30, at Shrublands Nursing Home, Croydon, Alva, wife of the Rev. P. D. Robins, A.F.C. (late R.A.F. and Imper Airways)—a son.

THORNTON.—On July 9, at Manor Lodge, Old Windsor, to Catharin the wife of Capt. T. G. Thornton, M.C., D.F.C.—a daughter.

HANDLEY PAGE
AUTOMATIC SLOT CONTROL

"——When the engine was throttled back suddenly during a climbing turn, and the machine was stalled on the turn, it was still possible to raise the lower wing by normal use of the 'stick.' It is this kind of climbing turn that, in conjunction with engine failure or loss of power, has killed so many pilots in the past, and it can be said definitely that the automatic slots have reduced its dangers almost to vanishing point."

"MORNING POST,"
8th May, 1928.

"The Aeroplane" Supplement,
July 11th, 1928.

Telegrams:
"Glosaircra, Cheltenham."
"Glosaircra, Piccy, London."

Telephones:
Cheltenham 3061-2-3-4.
London, Regent 1745.
Codes:
A.B.C. 5th Ed. & Bentley's.

GLOSTER

AIRCRAFT CO., LTD.,
SUNNINGEND WORKS, CHELTENHAM.
Aerodrome and Works, Brockworth, Glos.
London Office - - 5, Grafton Street, W.1.

Gloster "Goring"

Series No. 3.
GLOSTER PRODUCTION
METHODS.

THE GLOSTER AIRCRAFT CO., LTD.,

Head Office :
SUNNINGEND WORKS, CHELTENHAM.

Works : { SUNNINGEND WORKS, CHELTENHAM.
BROCKWORTH AERODROME & WORKS, GLOS.

London Office : 5, GRAFTON STREET, BOND STREET, W.1.

THE quality of Gloster products is well known for its high standard, a standard which has been secured and maintained by accurate workmanship and sound methods. Some account of these methods as applied to the construction of aircraft in metal is given in the following pages, which will indicate how that quality is maintained.

The basis of good quality is accuracy, and in aircraft construction, where so much assembly must of necessity be performed by hand, accuracy in the components is vital, if anything like interchangeability is to be secured. The Gloster Company therefore in their whole factory personnel and equipment have aimed at the highest accuracy of workmanship.

The beginning of all production is, of course, the raw materials. In England the aircraft industry is fortunate in that the British Engineering Standards Association have laid down standards for raw materials, which, when purchased to those rigid specifications, are as near homogeneity and uniformity in quality as one can hope to get anywhere in the world. Gloster metal aircraft are built of materials that conform to these standards and can be relied upon to the last ounce of strength.

Gloster "Goring"

In manipulating these raw materials it is very important to treat them correctly and with the

LES produits Gloster sont justement renommés pour leur qualité incontestable, qualité dont le degré si élevé n'a pu s'atteindre et se maintenir que par l'entretien jaloux d'une précision rigoureuse, à toutes les phases de l'exécution, de même que grâce à l'emploi de méthodes de travail absolument rationnelles. Aux pages qui vont suivre, le lecteur trouvera quelques explications fort intéressantes au sujet des méthodes qui président à la construction des appareils d'aviation en métal, et il aura ainsi la faculté de se rendre mieux compte de la manière dont on arrive à assurer la bonne uniformité de leur qualité remarquable.

C'est la précision qui constitue la base de toute fabrication d'une qualité véritablement supérieure, et dans la construction des appareils d'aviation, où tant de travaux d'assemblage doivent nécessairement s'effectuer à la main, la précision des organes constitutifs est d'une importance capitale, si l'on veut atteindre un degré satisfaisant de parfaite interchangèabilité. C'est donc en s'inspirant de ces principes que la Gloster Company, dans tous ses ateliers, chez son personnel et dans son outillage industriel, a constamment cherché à réaliser le plus haut degré possible de précision dans l'exécution.

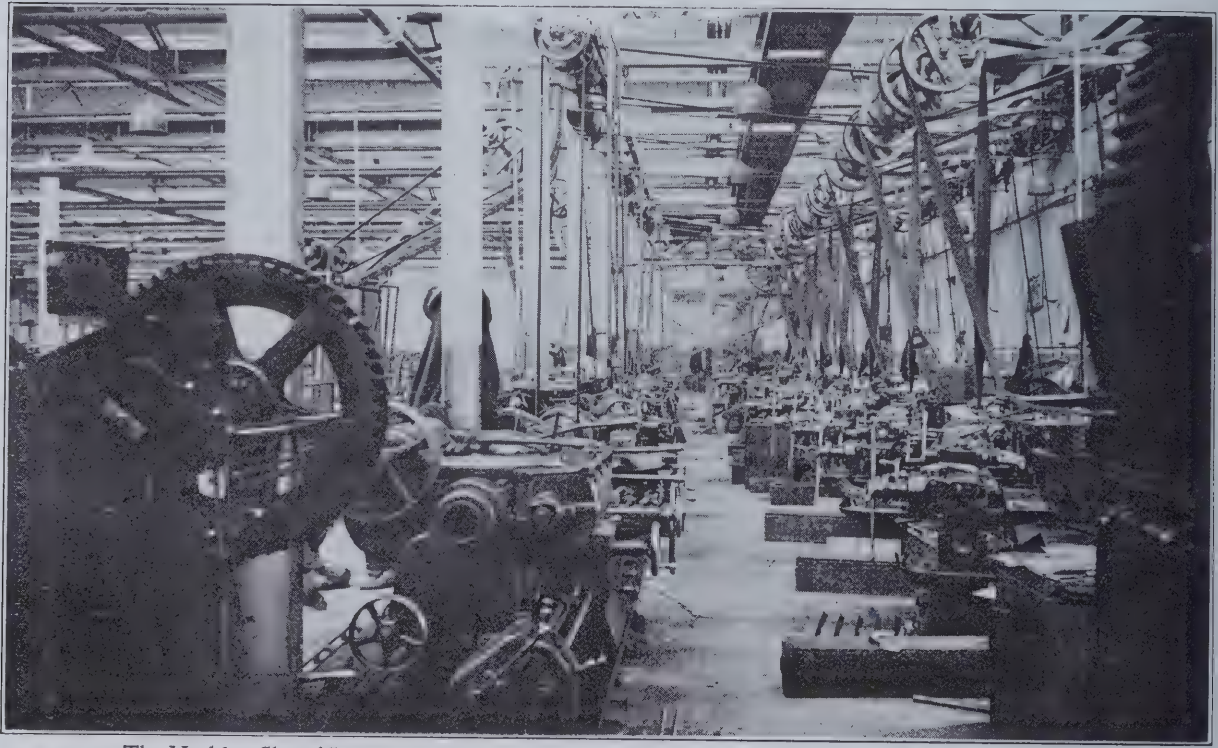
Bien entendu, dans la production industrielle, ce sont les matières premières qu'il convient utmost care. In the case of machining, for example, it is now well established that coarse turning or milling cuts tend to destroy the nature of metal for quite an appreciable depth below the surface. Because of this, all Gloster machined parts are to a fine finish, and no coarse cuts are taken unless a finishing touch is to follow. In the case of bolt holes these are always reamed after drilling, and held to as close a limit as ±.00025, for example, on holes up to ½″ both in machined parts and built up plate fittings.

For aircraft work, steel must be regarded as possessing qualities akin to glass, inasmuch as a large measure of strength against fatigue lies in the skin or surface. If this is scratched, scored or marked, failure will occur much sooner under an excess load. For this reason all parts that take important loads in Gloster machines are mirror finished and in the case of high speed racing machines, microscopical examination is employed to detect any surface flaws.

It is only by careful attention to these details that Gloster products have been brought to such a high standard of performance, reliability and quality, a fact borne out by their ability to stand hard wear and tear under severe conditions of service.

In general the main structural portions of Gloster metal machines are made of steel, the fuselage being of tubular construction and the wings and tail unit, etc., being of high tensile strip steel. Aluminium and duralumin are used principally for floats, tanks, fairing, propellers and minor parts.

In order to secure as large a measure of interchangeability as possible, jigs are used



The Machine Shop (Capstan Section).

Atelier d'Usinage (Section des Tours-Revolver).

d'envisager en premier lieu. En Angleterre, l'industrie de l'aéronautique a la bonne fortune d'avoir la *British Engineering Standards Association*, organisme qui a eu le soin d'établir des normes bien déterminées applicables aux matières premières, de sorte que lorsque l'on fait l'acquisition de matières premières rigoureusement conformes à ces normes rigidement définies, on a la quasi-certitude qu'au point de vue homogénéité et uniformité, ces matières seront d'une qualité aussi satisfaisante qu'il soit possible de trouver en n'importe quelle autre partie du monde. Or, les appareils d'aviation Gloster se construisent exclusivement à l'aide de matières premières absolument conformes à ces normes, et l'on peut donc compter sur la bonne résistance de ces matières jusqu'à l'extrême limite.

Quant à la manipulation même des matières premières, il est de la plus haute importance de les traiter dans les bonnes conditions voulues, de même qu'avec les plus grands soins. En ce qui concerne l'usinage, par exemple, il est désormais bien établi que le dégrossissage au tour ou bien le fraisage ont tendance à détruire la nature du métal, jusqu'à une profondeur fort appréciable, au-dessous de la surface. C'est donc pour cette raison que toutes les pièces usinées entrant dans la construction des appareils d'aviation Gloster, subissent une rectification très poussée, sans jamais donner lieu au moindre dégrossissage qui ne serait pas suivi d'un finissage très soigné. Ainsi, les trous devant livrer passage aux boulons sont toujours rectifiés à l'alésoir après perçage, avec une tolérance d'un ordre aussi poussé que celui de Opouce 00025 (Omm 00625), en plus ou en moins, comme par exemple pour les trous d'un diamètre de ½ pouce (12mm 7), et ce aussi bien pour les pièces usinées que pour les organes constitués par deux ou plusieurs tôles assemblées.

Pour les besoins de la construction aéronautique, il faut considérer que l'acier utilisé doit posséder des qualités rappelant en quelque sorte celles du verre, étant donné que, dans une grande mesure, wherever possible for all milling, drilling, welding and assembling operations.

In the case of metal plate fittings, hardened master templates are made for each fitting on a machine. In such plate fittings special care is taken to ensure that all radii of bends are such that the metal is not overstrained, and all hammering and punishing of the metal is eliminated where possible by the use of special bending jigs and tools.

All fittings are heat treated to remove any internal stresses set up by working the metal, and special salt baths are available for treating non-ferrous alloys of aluminium, etc. All heat treatment is controlled by Pyrometers fitted to each muffle or salt bath, and the temperatures are controlled to within ± 3° centigrade.

For very important heat treatment where extreme accuracy of temperature is necessary, such as normalising Duralumin, duplicate thermo couples are placed in the salt baths to warn the operator of any errors that may occur in the instruments themselves. In the case of high tensile steels, test specimens are heat treated with each batch of fittings, no matter how few, and tested for strength before the fittings are released for use on a machine.

All fittings subsequent to heat treatment are shot blasted. This removes all scale and oxide, secures a clear surface, and reveals to the inspector any flaws or cracks which may have been produced in the working of the material.

Assembly of ribs by the use of jigs.

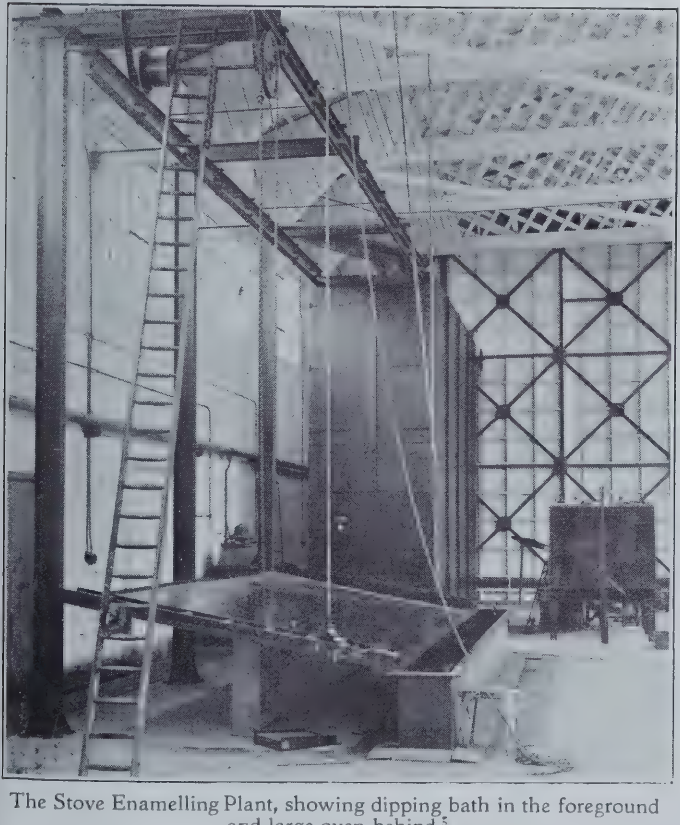
Assemblage des Membrures, avec emploi de gabarits.

la résistance de cet acier à la fatigue réside à la surface même. Si cette surface présente la moindre éraflure, la moindre entaille légère ou la moindre marque, la rupture est à craindre, tôt ou tard, sous l'empire d'une charge excessive. C'est pour ce motif que, chez les appareils Gloster, toutes les pièces sur lesquelles vient s'exercer une charge importante subissent un parachèvement au miroir, et, dans le cas des avions devant participer aux grandes courses de vitesse, on a même recours à l'examen microscopique, afin de déceler l'existence de tous défauts que pourrait présenter l'acier à la surface.

Ce n'est qu'en apportant l'attention la plus rigoureuse à tous ces détails, que les produits Gloster sont arrivés à atteindre un degré aussi élevé d'excellence au triple point de vue performance, sécurité et qualité, fait tangible, parfaitement démontré par la capacité qu'ils possèdent de résister victorieusement au service le plus dur, dans des conditions d'extrême sévérité.

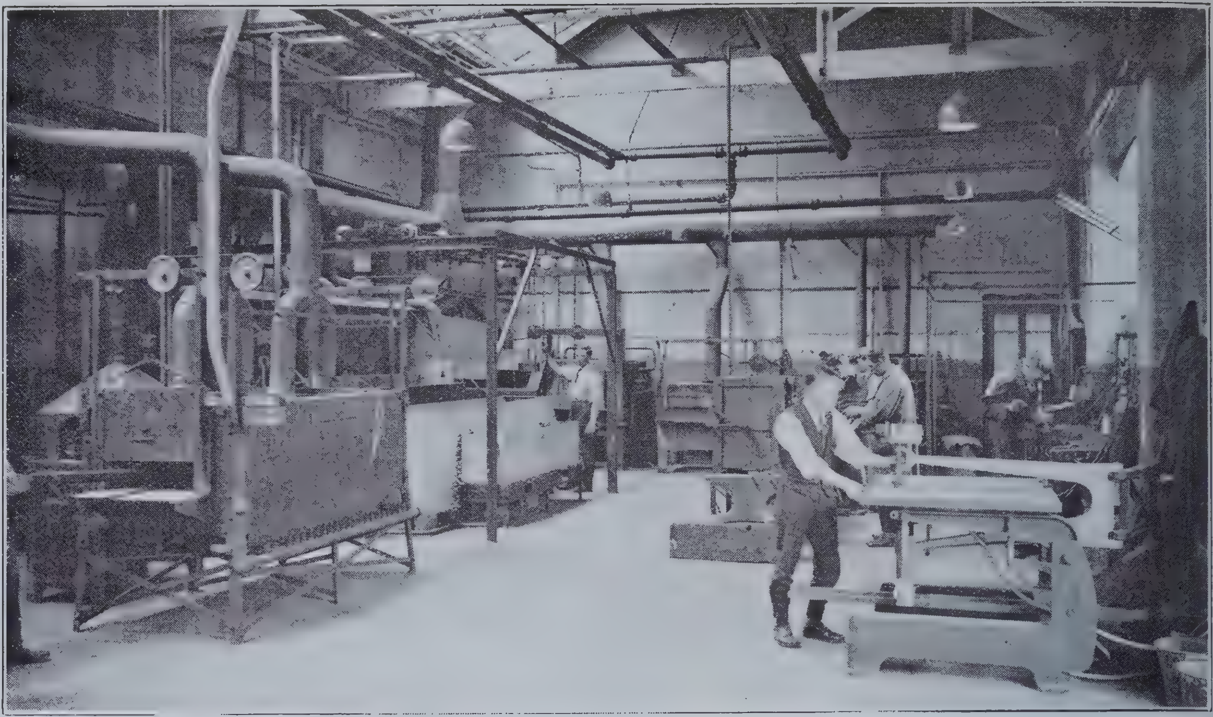
D'une manière générale, chez les appareils Gloster en métal, les principaux éléments de l'ossature sont en acier ; le fuselage est de construction tubulaire, tandis que les ailes et l'ensemble de la queue, etc., s'établissent à l'aide de feuillard en acier possédant une haute résistance à la traction. Quant à l'aluminium et au duralumin, ces matières s'utilisent principalement pour la construction des flotteurs, des réservoirs, des ajoutes fuselés, des hélices et des organes de moindre importance.

De façon à réaliser une interchangeabilité aussi complète que possible, et chaque fois qu'on en a la faculté, il est fait emploi de calibres appropriés pour toutes les opérations de fraisage, de perçage, de soudure et d'assemblage.



The Stove Enamelling Plant, showing dipping bath in the foreground and large oven behind.

Atelier de Vernissage. On voit le bain d'immersion au premier plan et le grand four, à l'arrière-plan



The Heat Treatment Section. Atelier pour Opérations de Traitement à Chaud.

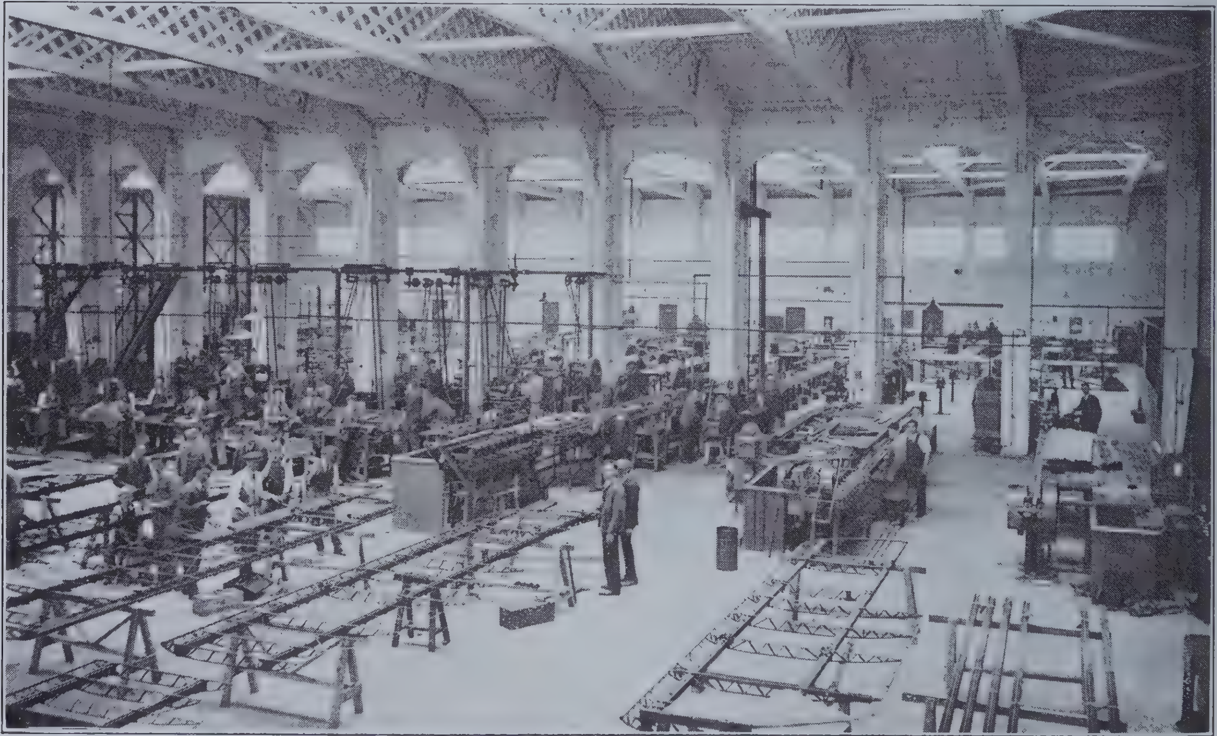
They are then baked in an oven to remove any moisture that may remain between rivetted surfaces, etc., through handling, and then dipped in enamel and stoved in an oven at 250° to 300° F.

Great care is taken in the washing of all fittings after treatment in salt or tin baths, in order to ensure that no salts or fluxes remain, and tanks of constant running hot water of ample capacity are used for this purpose.

Precautions are taken to preserve all fittings from subsequent rust or corrosion when embodied in the machine.

En ce qui concerne les pièces en tôle, on a la précaution d'établir des gabarits passe-partout trempés, pour chacune des pièces entrant dans la constitution d'un même appareil. D'ailleurs ces pièces en tôle donnent lieu a des soins tout particuliers, afin d'assurer que tous les rayons des parties courbes soient bien tels que le métal ne subisse aucun effort excessif. De plus, chaque fois qu'on en a la possibilité, on a la précaution d'éliminer tout martellement ou tout traitement brutal du métal, grâce à l'utilisation judicieuse de gabarits et d'outils spéciaux de cintrage.

Toutes les pièces d'assemblage sont traitées à chaud, de façon à supprimer tous efforts internes déterminés par le travail du métal, et l'on dispose

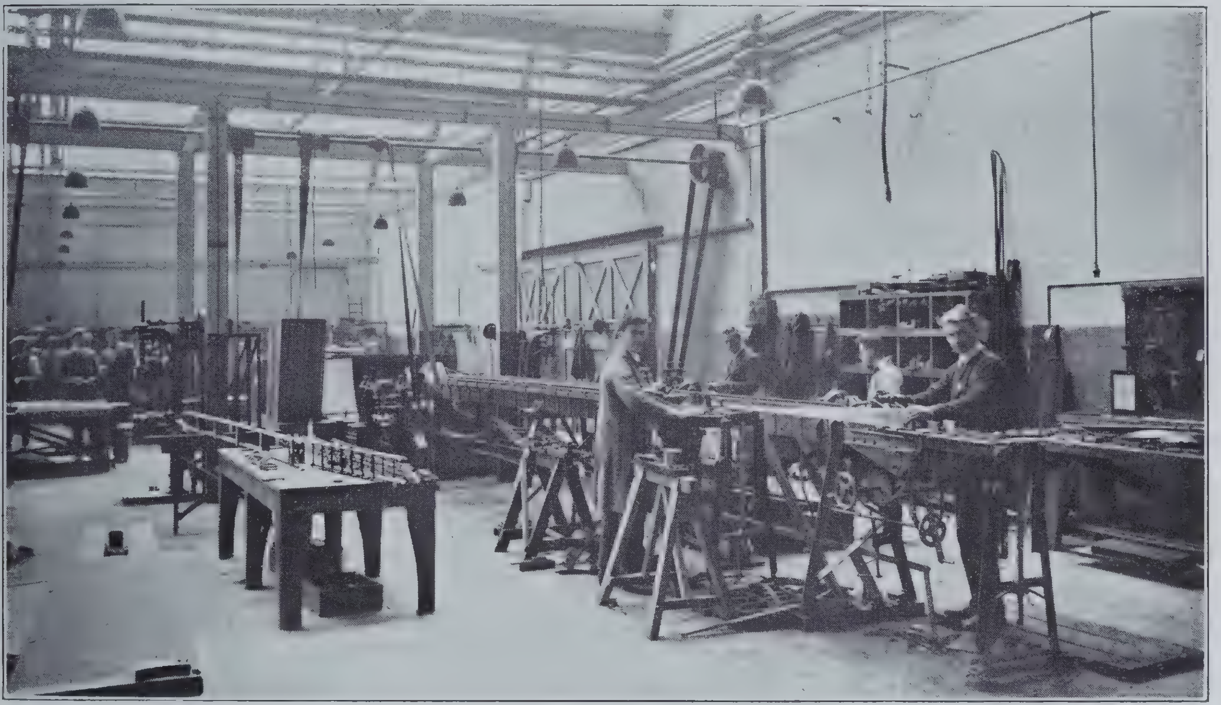


Strip Metal Section showing Rolling Mills—Draw Benches and wings under assembly.
Atelier pour le travail des feuillards, montrant les laminoirs, bancs d'étirage et ailes en cours d'assemblage.

In the case of steel parts for seaplane work, these are first coated with an electro deposit in zinc, which makes them immune from corrosion even in sea water.

All aluminium or aluminium alloy parts are anodically treated against corrosion in special acid baths, through which an electric current is passed. This gives them an oxide covering which is extremely hard and unaffected by heat, weather, or salt water. Moreover, in the case of castings it reveals any impurities that may lie on the surface.

Stainless steel is used as far as supplies will allow; when it is not used, fittings are always zinc coated and wings are stove enamelled. The wings are dipped as a whole after assembly, all the oil and grease being removed prior to dipping by heating to a moderate temperature for about 2 hours. They are then run into a gas heated oven and baked. Fuselages are not dipped as a whole, but each component is stoved in a similar manner in a smaller plant.



Draw Bench for Experimental Sections. Banc d'étirage pour expériences et création de profils nouveaux.

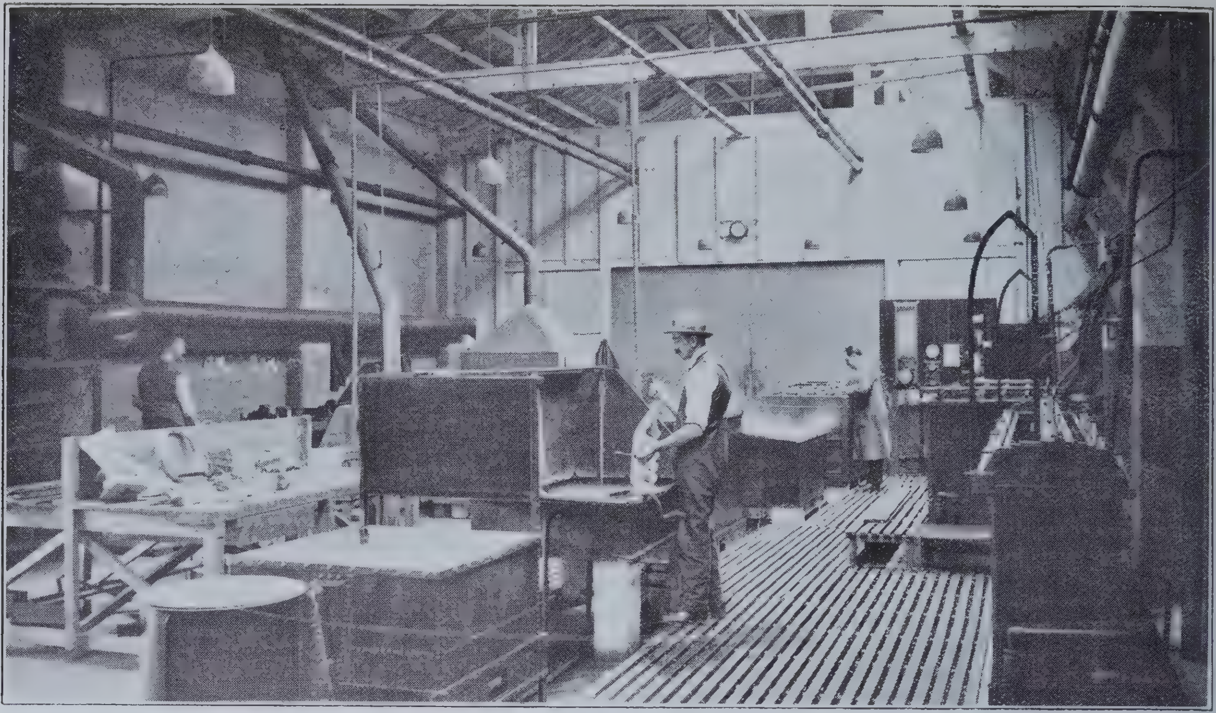
Ribs and spars are built up sections of high tensile steel strip supplied in coils. For forming the section rolling mills and draw benches are used. For production the rolling mills are used for the bulk of the sections required, the draw benches assisting by producing small sections, but they are used principally for experimental work, as a set of dies for a new section is cheaper and quicker to make than a set of rolls. The strip is always rolled in the hardened and tempered condition, as with the experience available, very little trouble is experienced, and this method avoids the costliness and complication of hardening and tempering each individual length of section.

en outre de bains de sels spéciaux pour le traitement des alliages non-ferreux d'aluminium, etc. Toutes les opérations de traitement à chaud sont assujetties au contrôle de pyromètres montés sur chaque moufle ou sur chaque bain de sels, et le réglage des températures s'effectue avec une tolérance de 3° Cent., en plus ou en moins.

Pour les opérations de traitement à chaud offrant une importance particulière et nécessitant une précision très rigoureuse quant aux températures, ainsi que c'est le cas de la normalisation du duralumin, dans les bains de sels il est disposé des thermo-couples doubles servant à avertir l'opérateur de toutes erreurs susceptibles de se produire dans les instruments mêmes. En ce qui concerne les aciers possédant une haute résistance à la traction, chaque lot de pièces—aussi peu nombreuses ces dernières soient-elles—donne lieu au traitement préalable d'éprouvettes à chaud, de sorte qu'on en vérifie soigneusement la résistance avant de permettre la montage de ces pièces sur tout appareil auquel elles sont destinées.

Après traitement à chaud, toutes les pièces d'assemblage subissent un nettoyage à l'aide d'un jet de grenaille. Cette opèration a pour effet d'en faire partir toutes battitures et toutes traces d'oxyde, d'assurer l'obtention d'une surface parfaitement nette et lisse, et de révéler au contrôleur l'existence de toutes fissures ou crevasses ayant pu se produire pendant le travail de la matière. Les pièces se mettent ensuite au four, afin d'éliminer toutes les traces d'humidité que la manutention aurait pu laisser entre les surfaces rivées l'une sur l'autre, etc.; puis on les immerge dans un bain de laque-émail, avant de les faire sécher au four, à une témpérature comprise entre 120° et 175° Cent.

On apporte le plus grand soin au bon lavage de toutes les pièces d'assemblage, après traitement dans les bains de sels ou de zingage, de façon à ce que l'on soit certain qu'il ne subsiste pas la moindre trace de sels ou de fondants, et, à cet effet, on fait usage de bâches appropriées,



Anodic Treatment Section. Atelier de traitement anodique.

Fittings are made of high tensile steel wherever possible to reduce weight. These, too, are made in the hard state where possible but when the shape is complicated they are worked soft and hardened after.

Turning to the question of design, for single bay fast machines of the scout class, where structural stiffness is desirable, lattice spars are used, as these have probably the greatest stiffness/weight ratio possible. For other classes of machines box spars composed of four rolled sections connected together are used. These present certain advantages in respect of ease of assembly and attachment of fittings. A large number of spars of

contenant une grande quantité d'eau chaude constamment en circulation.

Il est également pris les plus grandes précautions afin de protéger convenablement toutes les pièces contre la rouille et l'oxydation, après montage définitif sur l'appareil.

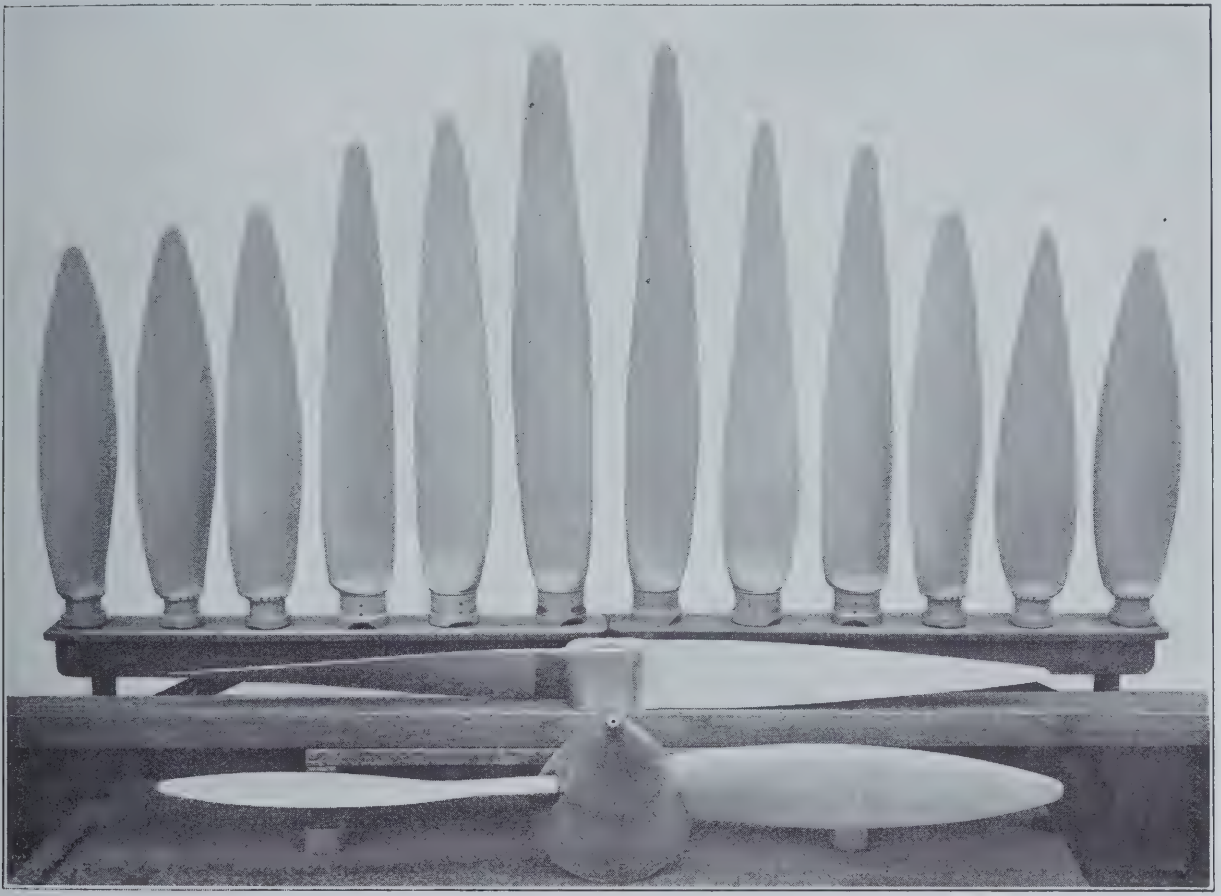
Pour les pièces en acier destinées aux hydravions des services maritimes, on leur applique tout d'abord une couche de zinc par le procédé électrique, ce que les met complètement à l'abri des atteintes de l'oxydation, même par l'eau de mer.

Toutes les pièces en aluminium ou en alliage d'aluminium son traitées anodiquement contre l'oxydation, par immersion dans des bains acides spéciaux, à l'intérieur desquels on provoque le passage d'un courant électrique. De cette façon, ces pièces sont recouvertes d'une couche d'oxyde

Sheet Metal Department (Float Section). Atelier de Tôlerie (Section des Flotteurs).

different sizes have been standardised and can be produced with existing tools while experiments with several new forms of spar are being carried out.

For ribs the built-up girder type of construction is employed as being more satisfactory than pressed ribs. Attention has been paid to the easy replacement of damaged ribs in the field by making the ribs in three pieces, viz. nose, centre portion and tail, joined together at the spars, any one or all of which can be replaced without disturbing the rest of the structure. The flange section is so shaped that the fabric covering can be wired on, a form of attachment which has proved definitely superior to ordinary stringing when actually tested in the air.



Gloster Duralumin Propellers.

Hélices Gloster en Duralumin.

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protectrice extrêmement dure, qui échappe entièrement à l'influence de la chaleur, comme à celle des intempéries ou de l'eau de mer. De plus, lorsqu'il s'agit de pièces venues de fonderie, ce traitement permet de révéler toutes les impuretés pouvant se trouver à la surface.

Il est fait usage d'acier inoxydable dans toute la mesure permise par les disponibilités. Lorsque on ne fait pas emploi d'acier inoxydable, les pièces d'assemblage sont toujours zinguées, tandis que les ailes sont vernies au four. L'immersion des ailes s'effectue d'un seul venant, après assemblage complet, toutes traces d'huile ou de graisse avant été soigneusement enlevées avant l'immersion grâce à un chauffage à température modérée poursuivi 2 heures durant. On place ensuite les ailes à l'intérieur d'un four à chauffage par le gaz, où elles séjournent assez longtemps pour que le vernis ait le temps de sécher convenablement. Quant aux fuselages, ils ne s'immergent pas d'une seule pièce, mais chacun de leurs éléments constitutifs subit un traitement analogue au four, dans une installation de moindres dimensions.

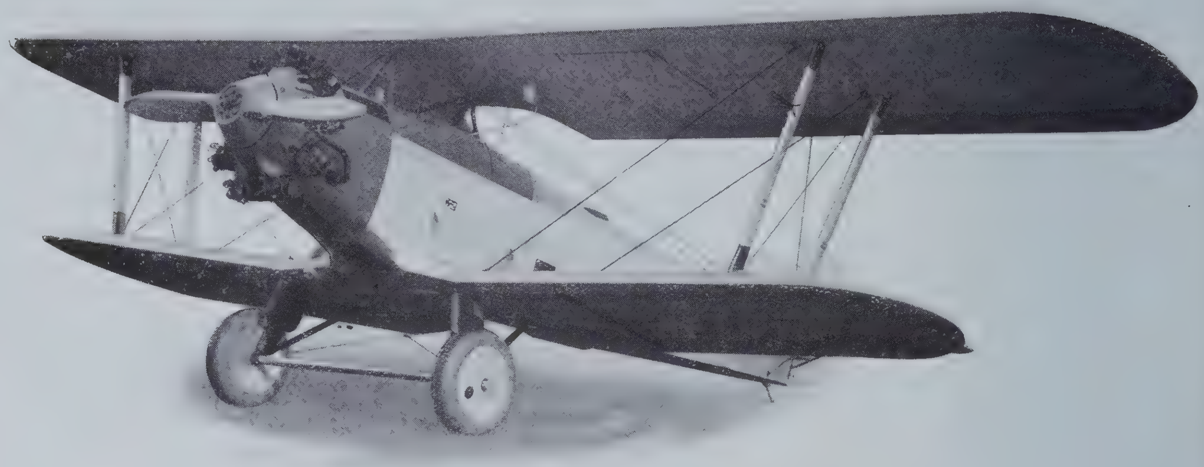
Les membrures et les longerons sont constitués à l'aide de profils rapportés en feuillard d'acier possédant une haute résistance à la traction, fourni en rouleaux, le profil voulu s'obtenant au moyen de laminoirs et de bancs d'étirage. Pour les besoins de la production, ce sont les laminoirs qui servent à fabriquer la majeure partie des profil dont on a l'emploi, tandis que c'est aux bancs d'étirage que l'on a recours pour obtenir les petits profils. D'ailleurs, ces bancs servent principalement aux travaux d'expérience, étant donné qu'un jeu de filières destiné à la production d'un profil nouveau peut se fabriquer à bien meilleur compte et beaucoup plus rapidement qu'un train de laminage. Le feuillard subit toujours le laminage après avoir été durci et trempé, vu qu'en raison de l'expérience déjà acquise, on n'éprouve guère de difficulté a cet égard. De plus, cette façon de procéder supprime la nécessité, aussi coûteuse que compliquée, de pratiquer le durcissement et la trempe sur chaque longueur de feuillard, prise individuellement.

(Voir suite à la colonne précédente.)

(Suite de la dernière colonne.)

Chaque fois qu'on en a la faculté, on a le soin d'établir les pièces d'assemblage à l'aide d'un acier possédant une haute résistance à la traction, afin d'en réduire le poids. En outre, ces pièces se confectionnent à l'état dur, dans toute la mesure du possible. Cependant, lorsque la forme en est trop compliquée, en les travaille à l'état ductile, pour les durcir ensuite.

GLOSTER "GORING I"



TYPE	Two-Seater High-Speed Bomber.		
ENGINE	450 h.p. Bristol Jupiter Aircooled Radial, Series VIII (Geared).		
DIMENSIONS	Total Surface	450 sq. ft.	41·8m^2.
	Span	42' Top, 33' 4" Bottom	12·8m., 10·15m.
	Chord	7' „ 5' 9" „	2·13m., 1·75m.
	Gap	5' 10½"	1·79m.
	Wing Section	Special High Lift Aerofoil.	
TANKAGE	Petrol: Two 75-gallon tanks mounted in top planes. Gravity feed.		
	Total capacity	150 gallons	680 litres.
	Oil	14 „	63·5 „
PERFORMANCE	Speed at 4,000 ft. (1,200m.)	136 m.p.h.	219 kms.
	„ 10,000 ft. (3,050m.)	133 m.p.h.	214 „
	„ 15,000 ft. (4,570m.)	122 m.p.h.	196 „
	Climb	4·5 mins. to 4,000 ft. (1,220m.)	
	„	13·1 „ to 10,000 ft. (3,050m.)	
	„	27·5 „ to 15,000 ft. (4,570m.)	
	Ceiling Service	16,500 ft.	5,030m.
	Landing Speed	51 m.p.h.	82 kms.
	Duration: 6½ hours at 15,000 ft. (4,570m.) with full load.		
WEIGHTS	Total loaded weight of machine, 5,600 lbs.		2,540 kg.
	Load per sq. ft.	12·43 lbs./sq. ft.	60·7 kg./m^2.
	Load per H.P.	12·43 lbs./h.p.	5·9 kg./C.V.
ARMAMENT	One Vickers Gun on top of fuselage, firing through propeller, and one Lewis on rotating mount in rear cockpit. Provision for bomb racks to carry 690 lbs. (314 kgs.) bombs.		
SPECIAL FEATURE	Easy accessibility to Engine and all essential parts, ideal gun position, robust construction, tanks easily detachable and gravity feed, excellent manœuvrability, light on controls.		

THE GLOSTER AIRCRAFT Co., Ltd.,
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No. 3.

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THE AEROPLANE—JULY 18, 1928.

R.A.F. ATHLETICS.

THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXXV. No. 3. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

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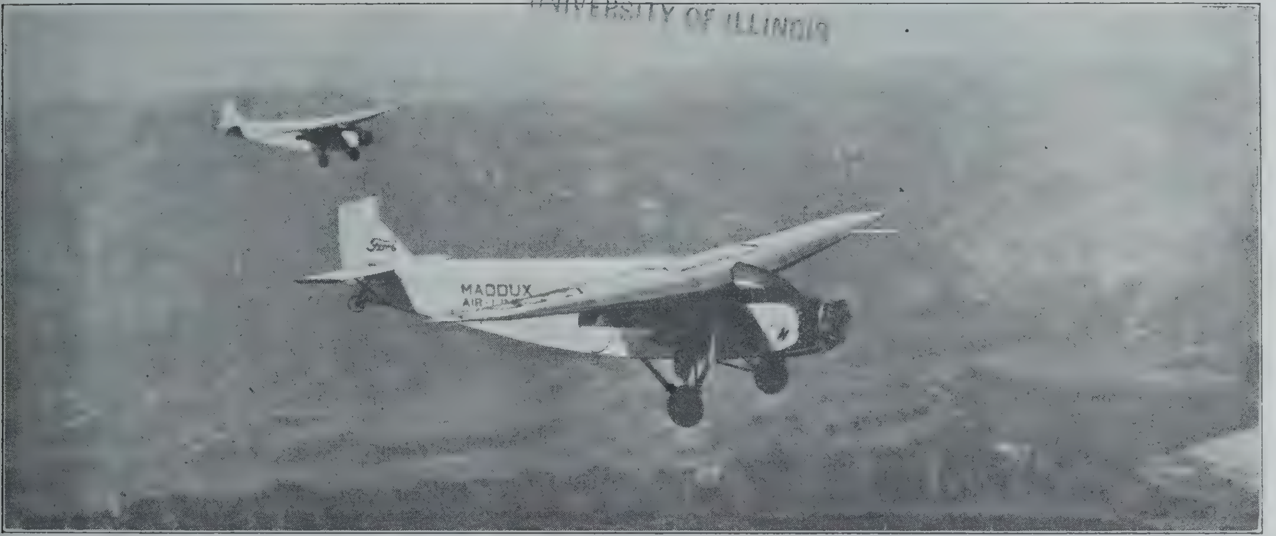
"THE NODDING HORROR OF WHOSE SHADY BROWS,
THREATS THE FORLORN AND WAND'RING PASSENGER.—(*Milton*).



OVER ROUGH COUNTRY.—Two Ford three-engined cabin monoplanes belonging to the Maddux Air Lines over the mountains between San Diego and San Francisco. Maddux Air Lines operate a daily passenger service between these two cities with stops at Bakersfield and Fresno.

PALMER LANDING WHEELS AND TYRES
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bility that if in these days of hot weather which we have had lately (probably there will be snow on the ground when these notes appear in print), offices had been furnished with easy chairs and lounges, people might have slept instead of working. But one hardly imagines that comfortable seats for pilots and observers in aeroplanes would cause the crews of aircraft to slumber at their posts.

PARACHUTE DISCOMFORTS.

One of the problems which is at present exercising the minds of all ranks of the Air Force is that of the parachute. There is no doubt that parachute harness itself is uncomfortable in any weather. Also a parachute pack is not a comfortable thing to sit upon, apart from the point made by Mr. Norman MacMillan in his engaging book, *The Art of Flying,* where he states that a parachute pack deprives the pilot of that direct contact with his machine which enables him to feel whether the engine is running comfortably.

A good many pilots of long range machines complain that merely sitting on a parachute pack for hours on end becomes a weariness of the flesh, but even so, it is not so bad as the discomfort caused by ill-fitting and hurriedly-adjusted parachute harness. Pilots of single-seat fighters, instructors at Training Schools and so forth will probably deny that parachute harness or the parachute pack really causes much discomfort. But perhaps they are not so well able to judge as are the crews of long range machines.

One can quite well understand the whole parachute outfit becoming a real worry to long-distance aviators. Possibly much of the discomfort about which one hears such a lot can be cured if each pilot or passenger has his own particular parachute and takes great care in fitting the webbing and the harness so as to get as much comfort as he can himself. One hears less complaint about the lap parachute, but even that is an uncomfortable thing to have flopping around.

There is naturally a close connection between bodily discomfort and mental discomfort, and probably now that people have parachutes the mental discomfort of being without a parachute would be worse than the physical discomfort of having one.

ALTERNATIVE SCHEMES.

There seems to be an attractive alternative in having the parachute in the machine but not permanently attached to the man. This is already done in certain of the old types of Bristol Fighters in which the petrol tank is so placed under the seat that the seat cannot possibly be put low enough to allow for a seat-parachute for the pilot on top of the tank.

In this type the parachute is carried on a kind of shelf in the fuselage behind the pilot, the pilot wears his parachute harness in the ordinary way and attached to the harness is a kind of quick-attaching plug which in case of need the pilot simply pushes into a hole in the parachute-casing where the plug snaps into place. The bigger the load on the plug the harder it grips.

One is told that the great trouble of this arrangement is that the metal fittings where the attachment is made falls automatically into such a position that when a man goes overboard and the line in which the plug attachment is made is pulled taut, the metal fittings either hit the pilot on the back of his head if he has a seat-type parachute, or smack him in the face if he has a lap-type parachute. Still, even a clump on the head is better than not having a parachute. Apart from which, there is the possibility that a good crack on the skull may act as a kind of dope and so deaden the senses to the fresh discomforts of the parachute descent and landing.

One or two aviators have suggested the idea of having the parachute packed into the back of a special kind of jacket which would be worn as the regulation Service flying jacket, very much as the Fleet Air Arm wear floating jackets instead of life-belts when at work over the sea. Perhaps our good friend Mr. Leslie Irvin would like to devote some of his great ingenuity to producing a jacket of this kind, with, of course, a proper leg attachment to carry the wearer's weight when actually dropping with the parachute.

There is, in fact, a great deal to be said for the detachable parachute, provided that the harness itself can be made more comfortable to wear. For instance, not very long ago detachable parachutes were, one believes, issued to the crews of some of the big twin-engined night-bombers. Or, if they were not, the crews have acquired the habit of slipping off their harness while climbing about the machine doing odd jobs.

In one of these machines a fire broke out in an engine-housing. One of the airmen promptly donned his parachute and got ready to go overboard. Then the idea struck him that perhaps the official fire extinguishers might work and that the fire might be put out. Thereon he doffed his parachute, climbed out onto the wing, and douted the fire. For which piece of work he was highly commended.

One has devoted a good deal of space to the parachute question because it happens to be one which is very much discussed in the R.A.F. at the moment. But there are others which also need prompt attention.

NOISE AND DEAFNESS.

One is the effect of noise on the crews of long-distance machines. One was told many months ago that the Medical Branch are quite seriously concerned because they find that the hearing of people who habitually fly in long-range machines, especially in twin-engined bombers, is liable to become permanently affected. This is a trouble which can only be attacked by aircraft designers.

Naturally something could be done by silencing the engines, but, as has so often been argued in this paper, there is no doubt that the majority of the noise is caused by the slipstream of the airscrews battering against the planes, struts and other parts of the machine which are in its way. This is a question which also affects Imperial Airways Ltd., and, in fact, anybody who is contemplating running passenger transport.

Personally one is more convinced than ever that the right way to stop such noise is to use pusher airscrews instead of tractors. Hitherto the objection to pusher screws has been that machines are difficult to balance if the engines are put over the trailing edge of the planes instead of the front, or, at any rate, machines could only be properly balanced by putting the nose of the fuselage a long way forward and making the machine an awkward shape.

In these days everybody who hopes for real efficiency has taken to using geared engines so as to get bigger and more efficient airscrews. Now that we are committed to using

THE PARADE OF ATHLETES.—The Station Teams lined up with the Team Captains in front after the march past, when the salute was taken by Air Vice-Marshal Sir John Higgins, K.B.E., C.B., D.S.O., A.F.C.

("*Aeroplane*" *photograph.*)

"Greatest Flight in History"

Daily News,
30th June, 1928

Referring to the recent flight from England to Australia by four Supermarine-Napier flying boats of the Royal Air Force, the *Daily News* of 30th June, 1928, says—

"Two 500 h.p. Napier Lion water-cooled engines propel each craft at a maximum speed of 108 miles an hour.

The reliability of these engines,

WHICH IN 144,000 ENGINE MILES HAVE NOT MISSED A BEAT, HAS ASTONISHED THE TECHNICIANS. NO TYPE OF ENGINE HAS BEEN PUT TO SO SEVERE A TEST BEFORE."

Once again has the Napier engine proved its remarkably consistent reliability. There is not another engine in the world which has carried out so satisfactorily utility flights such as these long-distance cruises. They are not "stunt" flights, but demonstrate what standard Napier engines, taken from stores, can do over long periods in actual service.

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gearing, surely there ought not to be very much difficulty, at any rate in the big twin-engined machines, in getting the engines in the front of the plane where they would be properly cooled, and running a fairly long shaft back to the trailing edge where the airscrew and the gearing would be fitted. In this way the engine and shaft could run at a very high speed and so a smaller shaft could be used than if the shaft itself were coupled direct to the airscrew.

Besides doing away with all the noise caused by the battering of the slip-stream on the various impediments in its way, this arrangement would actually give higher efficiency to the airscrew itself in that an airscrew will take hold of air which has been broken up by wings and struts and will use it efficiently whereas if the slip-stream itself be broken up the efficiency of the airscrew suffers. Thus, in a way, one may say that if one gives the airscrew more comfortable conditions in which to work, it does its job more efficiently. How human of it!

Cold.

Another matter which seems to need more attention than it gets is the question of cold in Service machines. One has not made actual inquiries on the subject, but presumably electrically-heated clothing is still a Service issue to pilots of high-altitude fighters. But such clothing does not seem to be issued to the crews of night-bombers.

They say that the old bombing position, in which a man lies flat on his stomach in the body of the machine, is quite cold enough at a high level, but somehow being in the body of the machine a man is not anything like so cold as he is perched right up in the nose, which is the position now used in some of the most recent bombers. Perhaps some of the Air Staff who realise that comfort is necessary to efficiency will look into this question also.

Certainly it is one which deserves the attention of designers of passenger machines, for although one has never flown high up on a Winter's day, there evidently is need for proper heating of passenger machines. One has had several complaints from paying passengers about suffering from cold even on such a short journey as that between London to Paris.

A comparatively minor discomfort, which none the less detracts from efficiency is the form of telephone cap and its attendant gadgets as worn by pupils and instructors at Flying Training Schools. Continual wearing by an instructor for perhaps three or four hours a day does cause intense weariness, and so must detract from the efficiency of the instructor's regulation " patter." And pupils also find the telephone installation on their heads uncomfortable enough to distract their attention from the words of wisdom which the instructor is trying to drive into them.

Taking it all round, whether people are concerned with long-distance lines or reaching the highest standard of efficiency in running an air force, the whole question of comfort demands serious consideration.—C. G. G.

THE KING'S CUP RACE.

The race for The King's Cup will start from Hendon at 08.00 hrs. on Friday next, July 20. The finish will be at Brooklands on the afternoon of July 21—during the course of the 200-mile car race.

The race for the Siddeley Trophy will be run concurrently with the King's Cup Race.

The list of entrants was published last week.

THE NEW SUBSIDY.

Details of the new agreement between H.M. Government and Imperial Airways, providing for the subsidisation of the through service from London to India, were published on July 12. (H.M. Stationery Office, Cmd. 3143. Price 1d. net.)

The existing European services of Imperial Airways, to the extent of a minimum of 425,000,000 horse-power-miles per year, and the India service, which will incorporate the existing Middle-East Service, are all covered by the one agreement. Like the previous two agreements which it supersedes, this provides for subsidies extending over a period of ten years from the date of coming into force (April 1, 1929), thus giving the company five years longer of subsidised life than in the original 1924 agreement.

The total sum to be paid by the Government under this agreement amounts to £2,500,000, made up of £335,000 in each of the years 1929/30, 1930/31, £310,000 in 1931/32, 1932/33, 1933/34, and 1934/35, £220,000 in 1935/36, £170,000 in 1936/37, £120,000 in 1937/38, and £70,000 in 1938/39.

The scale of subsidy has been computed to allow Imperial Airways to write off 25% of the value of all their aircraft per annum on the ground of obsolescence—which in other words means allowing them to scrap all machines as they become four years old. In this way it is hoped to secure the rapid development of new and more economical commercial aircraft and thus to hurry on the day when the services shall become self-supporting.

The new service to India will, it is hoped, be opened on April 1, 1929. Rates for mail carried by this service will be fixed by the company in agreement with the Post Office, but in any case the surcharge over the ordinary postal rate to India will be in the neighbourhood of 3d. per ounce England to Egypt, Egypt to 'Iraq, and 'Iraq to India, and 6d. per ounce England to India.

A NEW CANADIAN PAPER.

Canada has now produced a second aviation publication. This is *Canadian Aviation,* the Official Publication of the Aviation League of Canada. Competition is always good for trade, so *Canadian Aviation* and Mr. A. H. Munday's paper, *Aircraft and Airways,* which is now known as *The Canadian Air Review,* should be a distinct help to one another. Major-General J. H. MacBrien, President of the Aviation League of Canada, who has already given his blessing to *The Canadian Air Review,* under its original name, contributes the first article to *Canadian Aviation,* on Canadian Aviation.

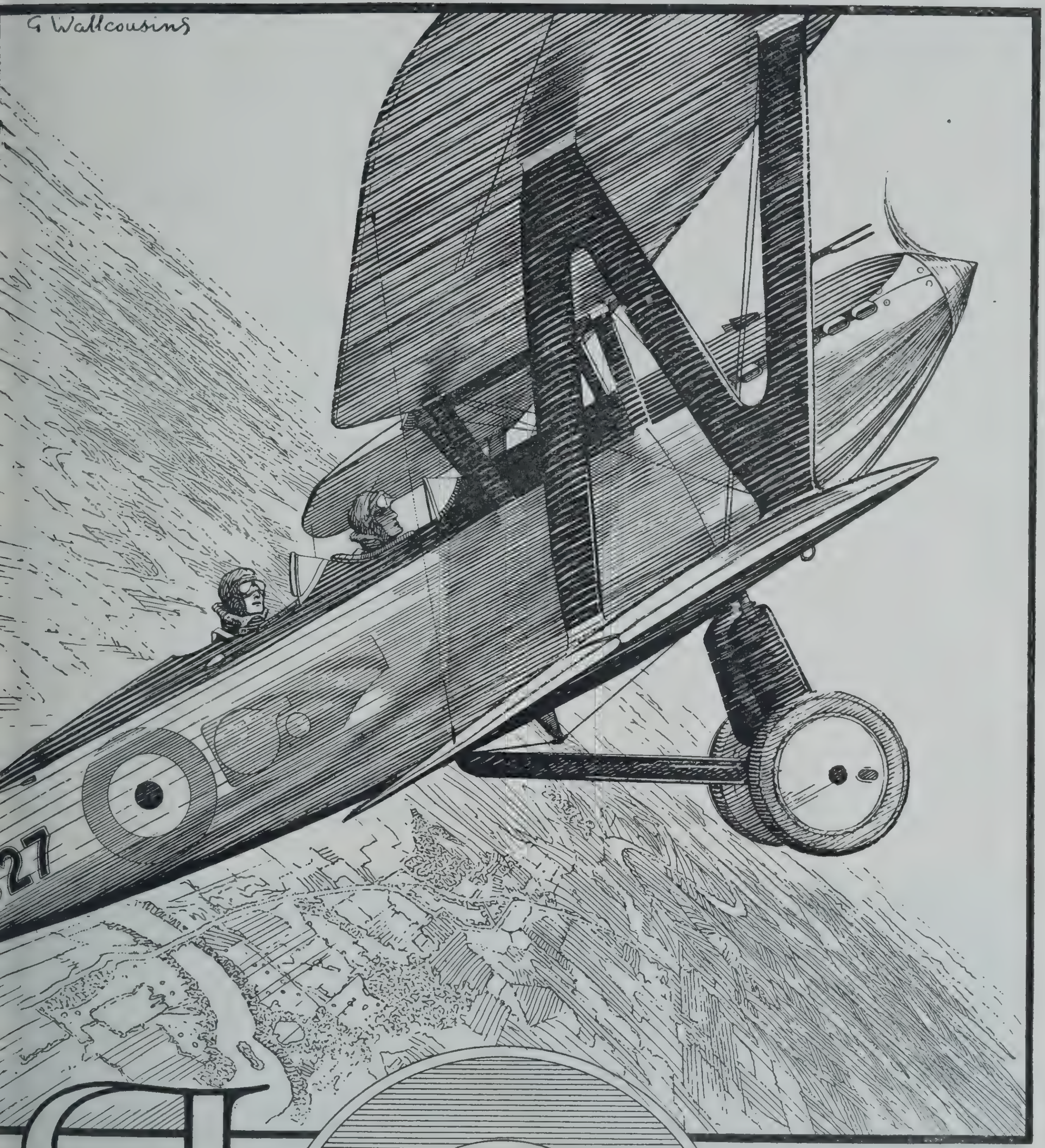
The principles and policy of the Aviation League of Canada are well set forth. The fact is noted that Sir Charles Wakefield, who seems to be the Lord Bountiful of Aviation all over the Empire as well as of Great Britain, has presented a Moth to the Aviation League of Canada in appreciation of the work which Major-General MacBrien has done to further the airmindedness of Canadians.

Wing Cdr. Stedman, the chief aeronautical engineer of the Department of National Defence, contributes an interesting article on the training of aeronautical engineers. Major Douglas Hallam has an article on model aircraft, and Group Capt. Scott describes the organisation of air services.

THE PUBLISHING DEPARTMENT OF "THE AEROPLANE."

As from July 25 the Publishing Department, the Book Department and the Accountant's Department of The Aeroplane will be located at Cannon House, Pilgrim Street, Ludgate Circus, E.C.4, telephone Central 5822. The Editoria Office is still at 175, Piccadilly, W.1., telephone Gerrard 5407.

HEAVE!—The final of the Tug-of-War Open Team Championships (110 stone). On the left are the Henlow Team, runners-up, and on the right the Uxbridge Team, winners.—*("Aeroplane" photograph.)*



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THE ITALIAN POLAR EXPEDITION.

All concerned in the "Italia" disaster and the various relief expeditions have now been accounted for, except the six men carried away in the balloon portion of the airship, and the Latham flying-boat on board of which were Capt. Amundsen, Commandant Guilbaud and three companions.

On July 11 an aeroplane attached to the Russian icebreaker *Krassin* sighted the party that set out on foot from General Nobile's party on May 30, but the Russian aeroplane, piloted by M. Chuhnovsky, was forced to alight on the ice on the way back to the *Krassin*.

M. Chuhnovsky, and a Norwegian dog-team driver with three Italians who had been sent from the relief-ship *Braganza* to search for the Russian aviator, were later picked up by the *Krassin*.

The ice-breaker eventually picked up Majors Mariano and Zappi of the first party, and continuing eastwards it also found and rescued the remaining members of Gen. Nobile's party under Lieut. Viglieri.

On July 14 two Swedish and one Finnish seaplane alighted in a lead between the ice-fields and picked up Capt. Sora and M. van Donghen. Finally, a guide, who was left behind by Capt. Sora, has found his way to the relief-ship *Braganza*.

In the meantime much ill-feeling seems to exist between the Italian and Swedish Press over the death of Dr. Malmgren, who, with a broken hand and two frozen legs, requested Majors Mariano and Zappi to leave him behind to die on the ice rather than allow him to hinder their progress towards help for the other marooned men.

Similarly, the premature announcement in the Paris newspaper *Le Matin* that Gen. Nobile had alone been saved, while 16 men had died, four more were on the point of death and six others had disappeared, has drawn forth a violent protest from the Italian newspaper *Impero*. Under the heading "To a Pig," the editors publish the text of a registered letter which they have sent to the editor of the *Matin* challenging him or any of his staff to a duel. The *Impero* has since declared that the affair is not the occasion for the customary journalistic duel, but should be fought out by teams of six, or twelve, a side "under the most severe conditions."—What an opportunity for Mr. Cochran, or Mr. Tex Rickard!

Furthermore, in certain circles in Italy itself there is considerable feeling because General Nobile allowed himself to be rescued before any of his men. He is looked upon rather as a captain who is the first to desert a sinking ship. This view takes no account of the fact that Lieut. Lundborg was ordered to bring Gen. Nobile back, and that the injured general was not able to resist the efforts of his own men t put him into the aeroplane.

Italy is deeply stirred by the rescues of so many of it countrymen by the Swedish Relief Expedition and by th Russian ice-breaker *Krassin*. Signor Mussolini has sen the following telegram to Professor Samoïlivitch, the hea of the Russian Relief Expedition :—

> You have performed a deed which will be historic among the annal of Arctic endeavours and of the most generous gestures of humanity I thank you in the name of Italy. I beg you also to convey my thank to all your fellow-workers.

Truly a generous tribute from a Fascist to a Bolshevik.

All the Italian Press pays tribute to Dr. Malmgren, whon it likens to Capt. Oates, of the Scott Antarctic Expedition who deliberately sacrificed his life to help the remainder o the party.

CAPT. EMILIO CARRANZA.

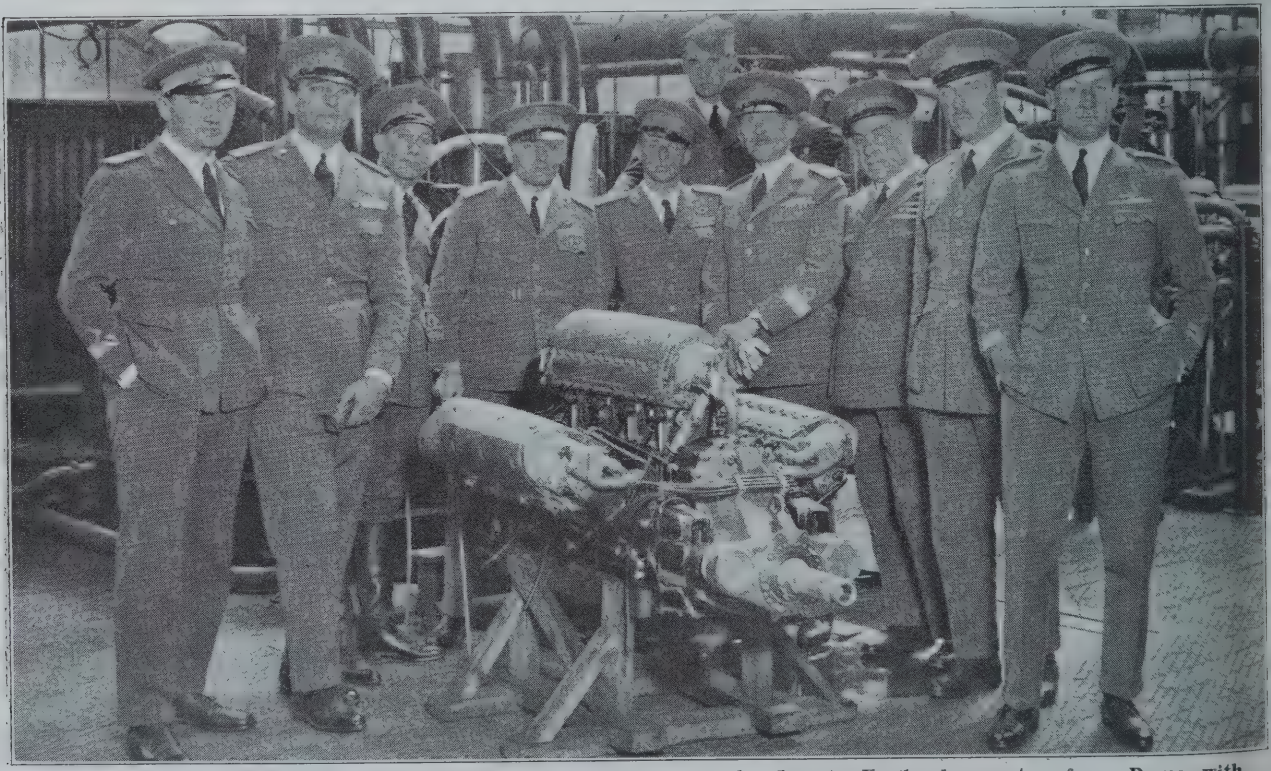
On July 12, Capt. Emilio Carranza, the Mexican aviator wh recently flew from Mexico City to Washington and New Yor on a Mexican "Goodwill" flight, left New York on hi Ryan monoplane to fly non-stop to Mexico City, but soo after taking off he ran into a thunderstorm. In tryin to land to escape it his machine was wrecked in a wood nea Mount Holly, N.J., when it was too dark for him to see th nature of the country below. His body was found on Jul 14 and was taken to New York for a funeral ceremony. I was to be taken to Mexico City by rail for burial there wit all the honours accorded to a General, Capt. Carranza's post humous rank. A guard of honour of United States soldier accompanied the body to Laredo, Texas, where it wa handed over to a Mexican guard of honour.

THE ROYAL AERO CLUB OF HOLLAND.

His many friends in England will be glad to hear tha Colonel H. Walaardt Sacré, who formerly commanded tha very efficient organisation the Royal Flying Corps of th Dutch Army has recently been elected Secretary-General o the Royal Aero Club of Holland, or the *Aéro Club Royal de Pays Bas,* to use the title by which it is recognised as member of the *Fédération Aéronautique Internationale.*

Colonel Sacré's long and intimate knowledge of aviatio and the high regard in which he is held by aviators of a countries, should go far to assure his success as Secretary General of the body which represents Holland's Aviation o International Councils. And his remarkable skill and facilit as a linguist should also be of high value to the Dutch Club All will wish him every success in these new activities.

Colonel Sacré's new office address is :—Anna Paulownaplei 3, The Hague.



SOME OF OUR VISITORS.—A group of the Italian Officers who flew to England non-stop from Rome with Signor Balbo just before the R.A.F. Display. They are here seen in the Napier test shop viewing one of the special Napier engines which were designed for the Schneider Trophy Race. The curious valve covers, which actually form part of the nose of the machine without any cowling over them, are worthy of notice. The Officers in the picture, from left to right, are: Major Lordi, Major Martelli, Lt.-Col. Fouguez, General Lombard, Lt.-Col. Binda, Lt.-Col. Aimone, Lt.-Col. Ranza, Col. Bolognesi, and Capt. Guazzetti.

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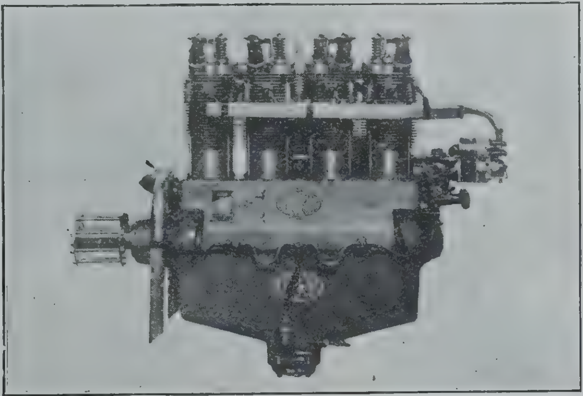

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CAPETOWN — LONDON. (Lady Pilot.)

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GOTHENBURG MEETING, 1928.

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THE ROYAL AIR FORCE.

The London Gazette.

July 10.

General Duties Branch.—The following are granted S.S. comns. as Plt. Offs. on probation with effect from and with seniority of June 29 :—J. R. Ayling, T. F. Balfour, R. L. Bennet, A. K. H. Binley, J. H. Brown, R. J. C. Hunt, J. C. L. Claxton, A. G. Cole (Lt., 7th Middx. Regt., T.A.), R. H. Coupe, S. A. Davis, F. C. E. Hayter, R. C. W. Ellison, W. C. Garrett-Petts, D. L. Iremonger, J. M. Israel, E. G. James, G. W. J. Jarrett, G. R. O'C. Lempriere, C. N. McLoughlin, J. G. Riess (2nd Lt., 20th Lond. Regt., T.A.), J. D. Robertson, H. E. Sales, I. M. Smith, R. H. Spurrier, W. G. Stevenson, K. G. Vandyck, F. K. Wood.

Lt. H. N. M. Nagle, R.N., is granted a temp. comn. as a Flg. Off. on attachment for duty with the R.A.F. (June 28); Plt. Off. on probation J. Barton is confirmed in rank (June 15).

Sq. Ldr. C. J. W. Darwin, D.S.O., is placed on the retired list at his own request (July 1); Flg. Off. J. S. Dick is transferred to the Reserve, Class A (June 30).

The following resign their S.S. comns. :—Flg. Off. (Hon. Flt. Lt.) (Capt., Rif. Bde., R.A.R.O.) D. S. Cairnes (July 8); Plt. Off. on probation F. D. Dawson (June 28); Plt. Off. on probation F. J. Sarsfield-Sampson (June 29). The S.S. comn. of Plt. Off. on probation B. P. Silk is terminated on cessation of duty (July 7).

Flg. Off. M. W. J. Boxall is dismissed the Service by sentence of General Court Martial (June 25).

Stores Branch.—Sq. Ldr. F. H. Songhurst, M.B.E., is placed on the retired list on account of ill-health (July 11).

Medical Branch.—Flg. Off. F. A. O'Connor, M.B., resigns his S.S. comn. (June 30).

Reserve of Air Force Officers.—General Duties Branch.—Flg. Off. (Hon. Flt. Lt.) (Capt., Rif. Bde., R.A.R.O.) D. S. Cairnes is granted a comn. in Class A (July 8); H. Marsden is granted a comn. in Class A as Flg. Off. (July 10). The following are granted comns. in Class A.A. (ii) as Plt. Offs. on probation :—R. Harston, L. F. Hooper, E. M. King, P. L. D. Teichman-Derville (June 25).

The notification in the *Gazette* of Jan. 27 concerning Flg. Off. H. S. Eaton is cancelled.

Auxiliary Air Force.—General Duties Branch.—No. 600 City of London (Bombing) Squadron.—The following Plt. Off. to be Flg. Off. :—T. Courtis (May 9). No. 602 City of Glasgow (Bombing) Squadron.—The following to be Plt. Off. :—D. H. Back (May 21).

Appointments.

Week ending July 16.

General Duties Branch.—Wing Commander E. R. C. Nanson, D.S.C., A.F.C., to R.A.F. Depot, Uxbridge, 15/6.

Squadron Leader A. W. Mylne, to Coastal Defence Torpedo Bomber Flight, Donibristle, 2/7.

Flight Lieutenants L. M. Iles, A.F.C., to R.A.F. Reception Depot, West Drayton, 5/7. H. I. T. Beardsworth, to Home Aircraft Depot, Henlow, 25/7. R. Pyne, D.F.C., to R.A.F. Depot, Uxbridge, 19/5. L. B. Duggan, to No. 421 Flight, 9/7. J. A. McDonald, to No. 4 Sqdn., S. Farnborough, 22/5. H. S. Sandiford, to R.A.F. Depot, Uxbridge, 4/7. H. W. Woollett, D.S.O., M.C., to No. 43 Sqdn., Tangmere, 26/6. L. J. Riordan, A.F.C., to R.A.F. Depot, Uxbridge, 19/5. R. de L. Stedman, to R.A.F. Depot, Uxbridge, 8/6.

Flying Officers H. J. Paine, to Station H.Q., Hinaidi, 28/6. H. A. S. Byrne, to R.A.F. Depot, Uxbridge, 14/6. E. E. Fallick, to Home Aircraft Depot, Henlow, 18/6.

Pilot Officers K. F. Jones, to R.A.F. Depot, Uxbridge, 18/6. L. S. Tindall, to No. 39 Sqdn., Bircham Newton, 26/6. N. W. A. Cullum, to R.A.F. Depot, Uxbridge, on appointment to a S.S. Comn. (on probation), 6/7. (Hon. Flt. Lt.) F. P. Smythies and G. V. T. Thomson, to Coastal Defence Torpedo Bomber Flight, Donibristle, 2/7. F. R. Lines, to No. 208 Sqdn., Middle East, 23/6.

Medical Branch.—Flight Lieutenants R. J. K. Chattey, to R.A.F. Depot, Uxbridge, 8/6. E. J. Mockler, M.B., to Aircraft Park, India, 21/10. P. H. Perkins, to R.A.F. General Hospital, 'Iraq, 18/6.

Flying Officer J. F. McGovern, M.B., to R.A.F. General Hospital, 'Iraq, 22/6.

Stores Branch.—Squadron Leader J. Walker, to No. 2 Stores Depot, Altrincham, 17/7. Flying Officer F. D. D. Gaussen, to Supply Depot, Middle East, 30/6.

Accountant Branch.—Flight Lieutenants H. E. Cardwell, A.F.C., to R.A.F. M.T. Depot, Shrewsbury, 2/7. P. J. Farmer, to R.A.F. Depot, Uxbridge, 26/5.

Pilot Officer F. C. Rendle, to No. 4 Sqdn., S. Farnborough, 30/6.

Vacancies in the Stores Branch.

The Air Ministry announces that about 10 vacancies for permanent commissions in the Stores Branch of the R.A.F. will be offered for competition among young men of between 23 and 25 years of age, who have had not less than five years' business experience in a firm of standing. This will be the third competition under the scheme inaugurated in 1926 for the purpose of obtaining men with a business training to control and administer the supply of the highly valuable and complex equipment of the R.A.F.

Application should be made to the Secretary, Air Ministry (S.7), Kingsway, London, W.C.2, for the regulations and for application forms. Completed application forms should reach the Air Ministry by Aug. 15, or at the latest by Sept. 1.

Foreign Languages in the R.A.F.

An Air Ministry Order states that Syriac has been added to the list of languages for which awards for colloquial proficiency may be granted under R.A.F. regulations.

Tests for colloquial proficiency in this language will be held twice a year under the conditions at present in force for Arabic, Persian and Turkish.

Awards of £20 each will be made to officers, warrant-officers and flight-serjeants who pass the test provided that at the time of qualifying they have at least six months of their tour abroad unexpired. The number of awards payable annually for the colloquial tests in Arabic, Persian, Turkish and Syriac will not exceed 25 in all.

Special Assessments.

Air Ministry Orders state that the undermentioned officers have been awarded special assessments as stated on completion of a course of *ab initio* flying training at the R.A.F. Training Base, Leuchars.

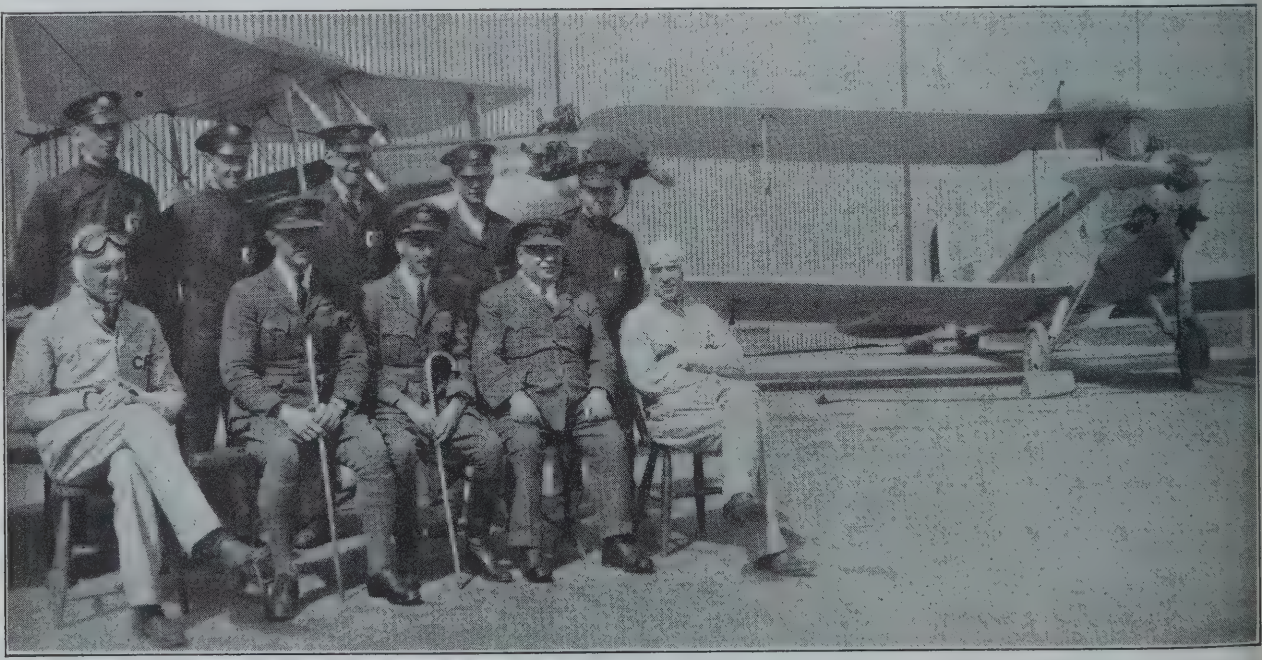
Distinguished Pass :—Lieut. H. P. Sears, R.N., Flg. Off. R.A.F., and Sub.-Lieut. H. P. Madden, R.N., Flg. Off., R.A.F.

A Halton Gymkhana.

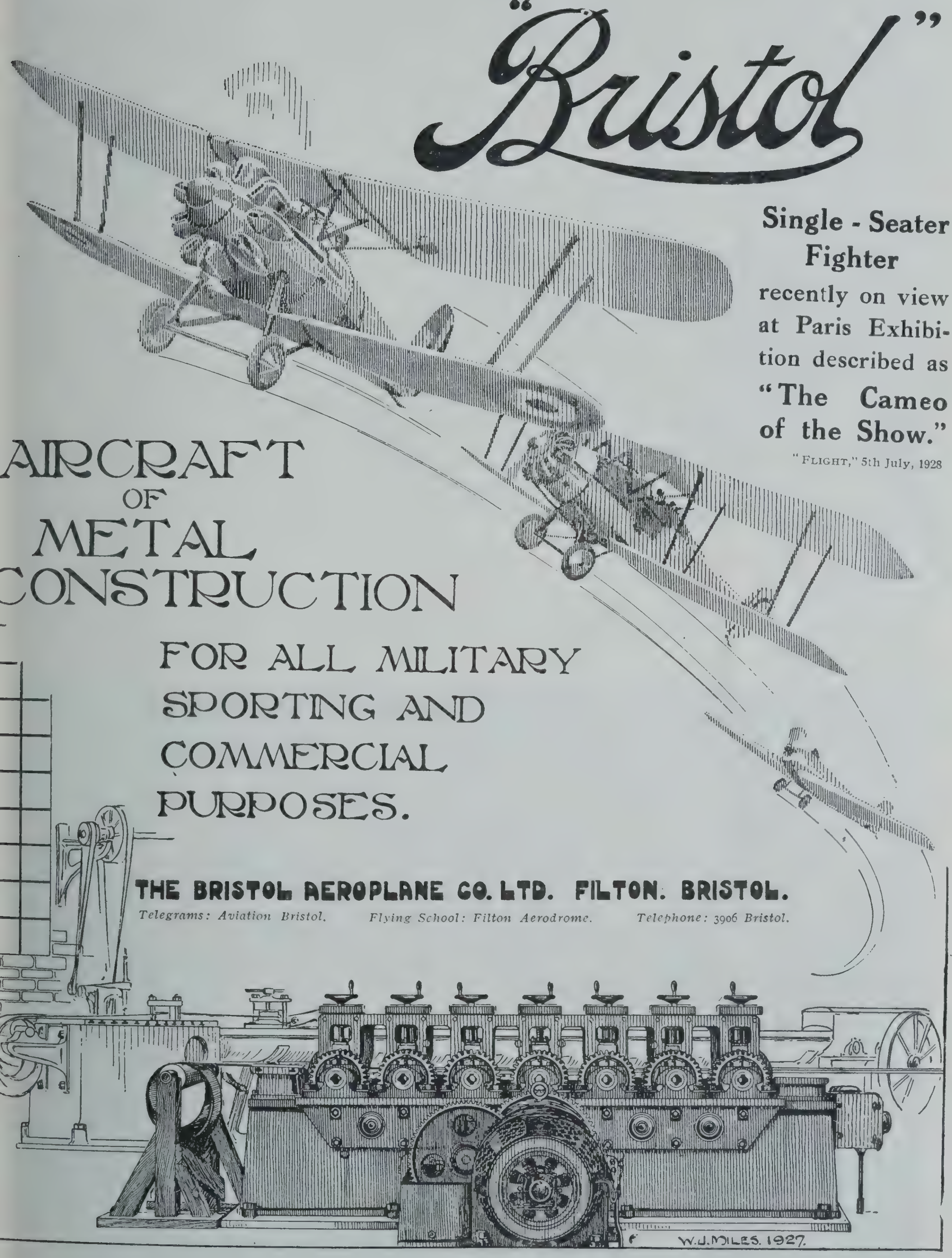
A Gymkhana and Air Pageant is being organised by the R.A.F. at Halton, and will be held at Halton Camp on July 26.

A prize of £100 has been kindly presented by Sir Charles Wakefield for light aeroplane races. A silver cup has also been presented by *The Bucks Herald*.

The financial object of the Gymkhana is to augment the funds of the Halton Polo and Hunt Club, and of the Halton Light Aeroplane Club.



THE VICE-VERSATILES.—The personnel and machines of the Inverted Flying Flight at the Central Flying School. This Flight was responsible for the striking evolutions by two Moths at the R.A.F. Display on June 30 and at Blackpool on July 10.



"Bristol"

Single - Seater Fighter recently on view at Paris Exhibition described as "The Cameo of the Show."

"Flight," 5th July, 1928

AIRCRAFT OF METAL CONSTRUCTION

FOR ALL MILITARY SPORTING AND COMMERCIAL PURPOSES.

THE BRISTOL AEROPLANE CO. LTD. FILTON. BRISTOL.

Telegrams: Aviation Bristol. Flying School: Filton Aerodrome. Telephone: 3906 Bristol.

W.J. MILES. 1927.

THE R.A.F. ATHLETIC CHAMPIONSHIPS.

The R.A.F. Athletic Championships were held at the Stadium, Uxbridge, on July 11, 12, and 14. On all three days the weather was sunny and broiling hot,—which may or may not account for the notable improvement in all-round performances

In the Open Competition, for all stations, irrespective of size, Uxbridge won the Cup presented by His Majesty the King, for the second year in succession, with 47 points. Halton and Henlow tied for the second place with 44 points, Andover and Manston tied with 16 points, Flowerdown scored 13, and Cranwell, who won the Cup in 1922 and held it until 1927, were last with 10 points.

Cranwell's failure in the last two years must be attributed to the decrease in the establishment at that station caused by the transfer of No. 4 (Aircraft Apprentices) Wing to Halton.

In the Junior Competition for the Air Council Cup, open to units below 500 in strength, Sealand were first with 33 1/5 points, Gosport second with 30, Farnborough third with 26 and Calshot fourth with 16. This is the second year in succession that Sealand have won the Air Council Cup, previous winners being Gosport in 1924, and Digby in 1925 and 1926.

The Cup presented for the Air-Defence-of-Great-Britain Unit scoring the greatest number of points throughout the meeting was won by Andover.

Three new R.A.F. Individual Records were put up this year. In the One Mile Individual Championship, AC. R. Thomas (Henlow) won in 4 min. 20 1/5 sec., thus beating the R.A.F. record put up by himself by 7 3/5 sec. In the 120 Yards Hurdles Individual Championship AA. D. O. Findlay, Halton, finished in 16 sec., beating Flt. Lt. G. A. Hadley's record by 1/5 of a second. In Putting-the-Shot Plt. Off. T. R. Hope's put of 37 ft. 5½ in. beat the existing record by 4 inches.

In the team and relay events nearly all the times showed an improvement on the last two years. The time for the Two Miles Relay (Junior) was 8 min. 33 sec., 20 1/5 sec. better than last year and 5 3/5 sec. better than 1926. In the One Mile Relay, both Open and Junior, the times were better than 1926 or 1927. The same applies to the 440 Yards Relays.

The results in detail were :—

INDIVIDUAL CHAMPIONSHIPS.

880 *Yards.*—L-AC. Evans (Catterick), 1; Cpl. Tym (Martlesham Heath), 2; Plt. Off. Snaith (Sealand), holder, 3. (2 min. 4 sec.)

100 *Yards.*—L-AC. Elliott (Cranwell), 1; L-AC. Olney (Digby), 2; L-AC. Tillman (Henlow), 3. (10 2-5 sec.)

One Mile.—AC. R. Thomas (Henlow), holder, 1; AC. F. W. Turner (Uxbridge), 2; L-AC. Suckling (Lee-on-Solent), 3. (4 min. 20 1-5 sec.)

Two Miles Walk (non-championship).—AC. Golightly (Henlow), 1; AC. Castle (Halton), 2; AC. Chambers (Uxbridge), 3. (15 min. 25 sec.)

Three Miles.—L-AC. Goodall (Northolt), 1; AC. Johnson (Lee-on-Solent), 2; AC. Stone (Flowerdown), 3. (15 min. 42 sec.)

120 *Yards Hurdles.*—AA. Findlay (Halton), 1; Flt. Lt. Hadley (Ruislip), 2; Cpl. Goodman (Northolt), 3. (Time 16 sec.)

440 *Yards.*—AC. Rose (Uxbridge), 1; Plt. Off. Marshall (Sealand), 2; Flg. Off. Vines (Farnborough), holder, 3. (53 sec.)

Long Jump.—Flg. Off. Neame (Gosport), 22 ft. 2¼ in., 1; Flt. Lt. Hadley (Ruislip), 21 ft. 3¾ in., 2; AC. Ward (Wittering), 21 ft. 2½ in., 3.

High Jump.—AA. Findlay (Halton), 5 ft. 8 in., 1; Flg. Off. Nicolay (Sealand), 5 ft. 7 in., 2; Flg. Off. Vines (Farnborough), 5 ft. 3¾ in., 3.

Putting-the-Shot.—Plt. Off. Hope (Sealand), 37 ft. 5½ in., 1; Plt. Off. Cotton (Sealand), 36 ft. 11¼ in., 2; Flg. Off. Neame (Gosport), 36 ft. 1¼ in., 3.

TEAM CHAMPIONSHIPS.

Long Jump.—Open.—Henlow, 1; Halton, 2; Uxbridge, 3. *Junior.*—Hendon, 1; Gosport, 2; Sealand, 3.

440 *Yards' Relay.—Junior.*—Gosport, 1; Sealand, 2; Northolt, 3. (46 4-5 sec.) *Open.*—Henlow, 1; Uxbridge, 2; Halton, 3. (46 2-5 sec.)

Putting-the-Shot.—Open.—Halton, 1; Henlow, 2; Andover. 3. *Junior.*—Sealand, 1; Gosport, 2; Digby, 3.

One Mile Junior Team Race.—Calshot, 1; Lee-on-Solent, 2; Shrewsbury, 3. (4 min. 34 2-5 sec.) Order of Finish.—AC. Johnson (Lee-on-Solent), 1; L-AC. Goodall (Northolt), 2; L-AC. Suckling (Lee-on-Solent), 3.

One Mile Open Team Race.—Uxbridge, 1; Henlow, 2; Halton, 3. (4 min. 35 4-5 sec.) Order of Finish.—AC Thomas (Henlow), 1; AC. Turner (Uxbridge), 2; AC. Brown (Manston), 3.

High Jump.—Open.—Halton, 1; Uxbridge, 2; Cranwell, 3. *Junior.*—Farnborough, 1; Felixstowe, Gosport, and Hendon, level, 2.

Tug-of-War, Junior Teams.—Calshot beat Farnborough by two pulls to none.

Tug-of-War, Open.—Uxbridge beat Henlow by two pulls to none.

360 *Yards' Hurdles Relay Race (Junior).*—Farnborough, 1; Sealand, 2; Netheravon, 3. (53 4-5 sec.)

360 *Yards' Hurdles Relay Race (Open).*—Halton, 1; Uxbridge, 2; Manston, 3. (53 1-5 sec.)

Two Miles' Relay Race (Junior Teams).—Martlesham Heath, 1; Sealand, 2; Shrewsbury, 3. (8 min. 33 sec.)

Two Miles' Relay Race (Open).—Henlow, 1; Uxbridge, 2; Halton, 3. (8 min. 29 4-5 sec.)

One Mile Relay Race (Junior).—Sealand, 1; Shrewsbury, 2; Netheravon, 3. (3 min. 35 4-5 sec.)

One Mile Relay Race (Open).—Uxbridge, 1; Halton, 2; Henlow, 3. (3 min. 35 2-5 sec.)

At the end of the proceedings on the final day the prizes were presented by Lady Trenchard.—C. M. McA.

THE FIELD.—The start of the One Mile Open Team Championship at Uxbridge on July 14. Uxbridge won in 4 mins. 35 4/5 secs. The Henlow Team (Nos. 27 and 28, and the two next on the left,—the outside one being AC. Thomas, who won) may be seen leading; No. 1 is AC. Turner, Uxbridge, who was second.

(*" Aeroplane " photograph.*)

The
ALPINE AIRWAY

LYNX-engined Fokkers are used on the Alpine Airway between Munich and Milan.

Lynx engines were selected for this most difficult journey because they proved more reliable than any other.

Lynx engines were used in Lt. Koppen's record-making flight from Amsterdam to Batavia and back—nearly 18,000 miles in twenty-one days.

Lynx engines are the most reliable engines in the 200-225 h.p. class.

The WORLD'S ENDURANCE RECORD
of 60 hrs. 7 mins. 32 secs. was made on a
Siddeley PUMA
engined D.H 9, by Adjutant Crooy and Sergt. Groenen.

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A.69

Lawn Tennis.

The Army and the R.A.F. Lawn Tennis Championships were held at Queen's Club, West Kensington, from July 9 to 14.

The R.A.F. Singles Championship was won by Wing Cdr. R. E. Saul, D.F.C. (Staff College, Camberley), who beat Flt. Lt. E. D. H. Davies (Halton), 6—1, 6—2, 7—5. In the earlier rounds, Wing Cdr. Saul had beaten Flt. Lt. Hederman, 6—1, 6—1; Plt. Off. E. O. Edwards, 6—0, 6—1; Flg. Off. Horstman, 6—1, 6—0, and Flt. Lt. H. J. Gilbert, 2—6, 6—, 7—5.

Wing Cdr. Saul and Flt. Lt. Davies won the R.A.F. Doubles Championship by beating Flt. Lt. H. N. Hampton (Digby) and Sq. Ldr. F. J. Murphy, M.B. (Digby), in the final round, 6—0, 6—3, 7—5. Wing Cdr. Saul and Flt. Lt. Davies had previously beaten Flt. Lt. S. W. Ware and Flg. Off. R. B. Horstman, 6—4, 6—4; Flt. Lt. W. J. Millen and Flt. Lt. E. J. Ffoulkes-Jones, 6—4, 6—4; and Plt. Off. E. O. Edwards and Plt. Off. A. W. Rule, 6—1, 7—5.

Flt. Lt. F. T. Boucher (Lee-on-Solent), holder, won the R.A.F. Veterans' Challenge Cup, having beaten Wing Cdr. I. G. V. Fowler, A.F.C. (Henlow), in the final round, 7—5, 3—6, 6—3. Flt. Lt. Boucher had beaten Grp. Capt. H. V. Wells, C.B.E. (Inland Area), in the semi-finals, 6—0, 6—3.

Halton won the R.A.F. Inter-Station Doubles Championship, Flt. Lt. E. D. H. Davies and Flt. Lt. L. V. Hirst beating Wing Cdr. I. G. V. Fowler and Flt. Lt. C. E. Williamson-Jones, D.F.C. (Henlow), in the final round, 6—3, 6—1.

The R.A.F. Plate Singles for players who had been knocked out in the first round was won by Flg. Off. G. R. Pallin, (Flowerdown), who beat Flg. Off. A. W. Rule (Cranwell) in the final round, 6—3, 6—3.

The R.A.F. Swimming Championship.

The R.A.F. Swimming Association Championship will be held at St. George's Baths, Buckingham Palace Road, S.W., on Saturday, July 28, at 19.45 hours. The championship events will be :—*Team Events,* Inter-Unit Relay Race and Inter-Unit Water Polo Final. *Individual Events,* 50 yards, 100 yards, 220 yards, 440 yards, all free style; 100 yards back stroke, 100 yards breast stroke, diving, plunging.

Oxford University beat the R.A.F. on June 19, at Oxford, by 4 events to none and won the Water Polo by three goals to one.

The Fourstore Sports Club.

The Fourstore Sports Club of No. 4 Stores Depot, R.A.F., Ickenham, held their Annual Sports and Gala Meeting at Ickenham on June 23.

While the sports were going on various shows were held, including a Hobby and Horticultural Show and a Baby Show. A concert and dance were given in the evening.

The results of the sports events were as follows :—

Putting-the-Weight.—1, A. F. Pratt; 2, F. Bryant; 3, A. Shelley.
Three-legged Race.—1, Shelley and Lacey; 2, Pratt and Finnigan.
Veterans' Race.—1, J. J. Witney; 2, L. Baker; 3, H. A. Terry.

Inter-Departmental Relay Championship.—1, "A" Group; 2, Provision Dept.; 3, "B," "C," "E," and "G" Groups.

Tug-of-War.—1, "A" Group; 2nd, "B," "C," "E," and "G" Groups.

Officers' Race.—1, Sq. Ldr. A. W. Turner, D.C.M., R.A.F.; 2, Wing Cdr. G. A. Hilliar, R.A.F.; 3, Sq. Ldr. E. M. Cashmore, R.A.F.

Band Race.—1, A. Simmond; 2, G. Sopp; 3, B. Stevens.

The winners of the best kept allotments in the Depot were :—1, A. Baldwin; 2, G. Winter; 3, G. Mill

The R.A.F. Dinner Club.

The following is a list of the members who attended the Sixth Annual Dinner of the Royal Air Force Dinner Club which was held in the Connaught Rooms on Friday, June 29, when the Chair was taken by Air Vice-Marshal Sir J. F. A. Higgins, K.C.B., K.B.E., D.S.O., A.F.C. :—

Allardice, D. J., Esq.; Andrews, J. C., Flt. Lt., M.B.E.; Andrews, J. O., Sq. Ldr., D.S.O., M.C.; Apps, B. R., Flt. Lt.

Babington, J. T., Wing Cdr., D.S.O.; Baker, F. C., Maj., D.F.C., A.F.C.; Balfour, H. H., Capt.; Barfoot-Saunt, G., Esq.; Barratt, A. S., Wing Cdr., C.M.G., M.C.; Beamish, C. E. St. J., Esq.; Beatson, C. G., Maj.; Becke, J. H. W., Brig.-Gen., C.M.G., D.S.O., A.F.C.; Beisiegel, W. K., Esq.; Bettington, A. V., Grp. Capt., C.M.G., D.S.O.; Betts, E. B. C., Flt. Lt., D.S.C., D.F.C.; Black, J., Rev., O.B.E.; Blick, J. F., Esq.; Boyle, J. D. Grp. Capt. the Hon., C.B.E., D.S.O.; Bradley, J. S., Esq.; Brancker, Sir W. S., Air Vice-Marshal, K.C.B., A.F.C.; Britton, E. A. A. C., Flt. Lt., D.F.C.; Brooke-Popham, Sir H. R. M., Air Vice-Marshal, K.C.B., C.M.G., D.S.O., A.F.C.; Burnett, C. S., Grp. Capt., C.B., C.B.E., D.S.O.; Bussey, J., Flt. Lt.; Busteed, H. R., Wing Cdr., O.B.E., A.F.C.

Cairnes, T. A. E., Lt.-Col., D.S.O.; Champion de Crespigny, H. V., Sq. Ldr., M.C., D.F.C.; Cockburn, R. A., Lt.-Col., O.B.E.; Colbran, C. L., Wing Cdr.; Colebrook, C. L. G., Esq.; Collishaw, R., Sq. Ldr., D.S.O., O.B.E., D.S.C., D.F.C.; Comper, N., Flt. Lt.; Coningham, A., Sq. Ldr., D.S.O., M.C., D.F.C., A.F.C.; Courtney, C. L., Grp. Capt., C.B.E., D.S.O.

Daniell, T. E. St. C., Col., O.B.E., M.C.; Dearlove, C. J. S., Flt. Lt.; Dick-Cleland, C. B., Flt. Lt.; Donaldson-Hudson, R. C., Lt.-Col., D.S.O.; Dore, A. S. W., Lt.-Col.

Ellerton, A. S., Flt. Lt.; Elmhirst, T. W., Flt. Lt., A.F.C.; Ensell, C. S., Rev.; Errington, F. H. L., Lt.-Col., C.B.; Evill, D. C. S., Wing Cdr., D.S.C., A.F.C.

Fellowes, P. F. M., Grp. Capt., D.S.O.; Ffiske, H. G., Maj.; Fielden, E. B., Esq.; Fielden, N., Esq., D.F.C.; Fletcher, A., Grp. Capt., C.M.G., C.B.E., M.C.; Forbes, J. L., Air Commodore, O.B.E.; Ford, R. J. A., Esq.

Game, Sir P. W., Air Vice-Marshal, K.C.B., D.S.O.; Garrod, A. G. R., Wing Cdr.,, M.C., D.F.C.; Gillman, L. E. M., Flt. Lt.; Gossage, E. L., Wing Cdr., D.S.O., M.C.; Gould, C. G. S., Wing Cdr.; Gould, L. T. N., Sq. Ldr., M.C.; Graham, J. B., Sq. Ldr., M.C., A.F.C.; Graham, R., Sq. Ldr., D.S.O., D.S.C., D.F.C.; Gray, A., Sq. Ldr., M.C.; Grenfell, G. P., Wing Cdr., D.S.O.; Grey, C. G., Esq.; Guilfoyle, W. J. Y., Wing Cdr., O.B.E., M.C.

Halford, W., Flt. Lt., D.F.C.; Halley, R., Sq. Ldr., D.F.C., A.F.C.; Hanson, R. E. V., Rev., O.B.E.; Harvey, P. G. A., Esq.; Harwood, V. T., Esq.; Higgins, Sir J. F. A., Air Vice-Marshal, K.C.B., K.B.E., D.S.O., A.F.C.; Hilton, L. M., Flt. Lt., D.F.C., A.F.C.; Hollinghurst, L. N., Flt. Lt., D.F.C.; Holt, A. V., Maj.; Holt, F. V., Air Commodore, C.M.G., D.S.O.; Howe, T. E. B., Wing Cdr., A.F.C.; Howes, E. McN., Esq.; Hurst, C. E., Esq.

James, A. W. H., Wing Cdr., M.C.; Jones, H. A., Esq., M.C.

Laing, G., Grp. Capt., O.B.E.; Lambe, C. L., Air Vice-Marshal, C.B., C.M.G., D.S.O.; Lambert, S., Maj., T.D.; Lawson, J., Flt. Lt.; Leslie, R. F. S., Sq. Ldr., D.S.C., D.F.C.; A.F.C.; Longcroft, C. A. H., Air Vice-Marshal, C.B., C.M.G., D.S.O., A.F.C.; Longmore, A. M., Air Commodore, C.B., D.S.O.

Macdonald, J. N., Wing Cdr.; Mackenzie, R., Esq.; Mackey, C. W., Sq. Ldr.; Martin, R. S., Flt. Lt.; Mason, J. M., Flt. Lt., D.S.C., D.F.C.; Maude, C. E., Wing Cdr.; Maycock, R. B., Wing Cdr., O.B.E.; Moller, F. S., Maj., M.C., D.F.C.

Newsome, T. H., Esq.

Openshaw, E. R., Flt. Lt.

Park, W. H., Sq. Ldr., M.C., D.F.C.; Pattison, H. A. L., Flt. Lt.; Pearson, T. S., Esq., M.C.; Pemell, H. T., Capt.; Pidcock, G. A. H., Flt. Lt.; Playfair, P. H. L., Grp. Capt., M.C.; Potts, C. H., Flt. Lt.; Purdey, T. D. S., Esq.; Pye-Smith, J. M., Maj.

Rathbone, C. E. H., Grp. Capt., D.S.O.; Rea, C. A., Sq. Ldr., A.F.C.; Robinson, F. L., Wing Cdr., D.S.O., M.C., D.F.C.; Ross, R. P., Grp. Capt., D.S.O., A.F.C., A.D.C.

Smith, G. H., Flt. Lt.; Stott, J. N. S., Capt.

Thomas, M., Sq. Ldr., D.F.C., A.F.C.; Thres, L. W., Esq., D.F.C.; Tyssen, J. H. S., Wing Cdr., M.C.

Vyvyan, Sir A. V., Air Vice-Marshal, K.C.B., D.S.O.

Welsh, W. L., Wing Cdr., D.S.C., A.F.C.; Wiggin, A. B., Flt. Lt.; Williams, G. G. A., Sq. Ldr.; Windeler, B.C., Maj., A.F.C.; Winter, C. G. H., Esq.; Workman, F., Sq. Ldr., M.C.

A NEW R.A.F. RECORD.—AC. R. Thomas (Henlow) who beat his previous record for the mile by 7 3/5 secs., doing it in 4 min. 20 1/5 secs. at Uxbridge on July 11.
("Aeroplane" photograph.)

WORLD'S DISTANCE RECORD—

PETROL BY SHELL

Capt. A. Ferrarin and Com. del Prete, the Italian Airmen, flying a Fiat-engined Savoia seaplane from Rome to Port Natal, covered a distance of 4,850 miles, creating a new non-stop *distance* record on Shell Petrol.

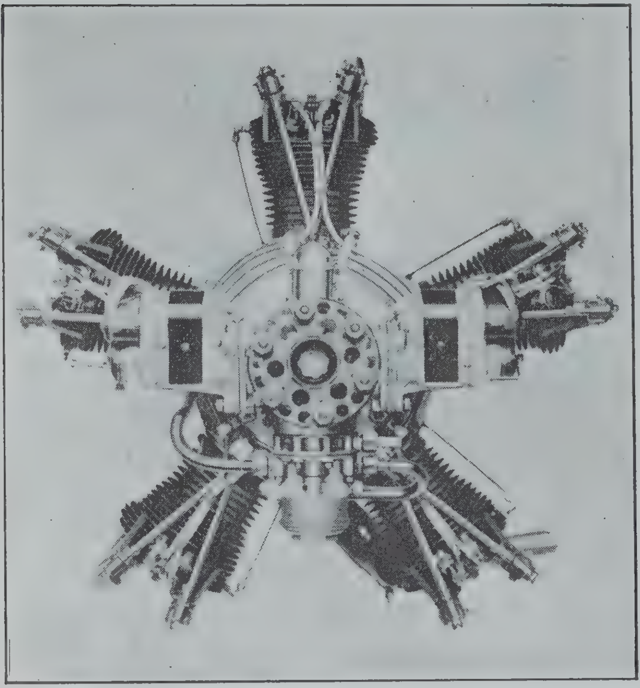
WORLD'S DURATION RECORD—

LUBRICATION BY SHELL

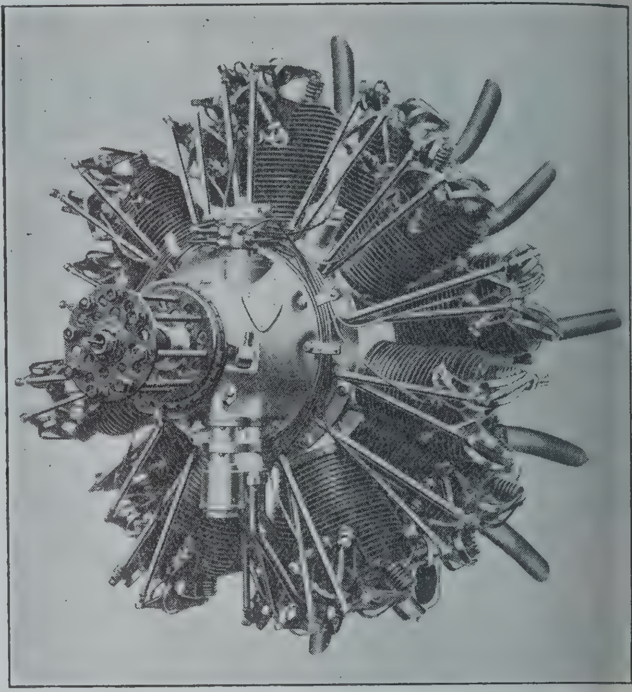
Herr Risticz and Herr Zimmerman, the German Airmen, flying a Junkers machine, created a new non-stop *endurance* record by staying in the air for 65 hours 30 minutes, relying on lubrication by Shell.

Above records subject to official confirmation.

ENGINES AT THE PARIS SHOW.



The 80 h.p. Armstrong Siddeley Genet engine.



The 425 h.p. Armstrong Siddeley Jaguar engine.

Anzani.

A. Anzani, 112, Boulevard de Verdun, Courbevoie, Seine.

The Anzani stand was furnished with one example each of the well-known three-cylinder 35 h.p., six-cylinder 75 h.p. and ten-cylinder 120 h.p. No change of any kind seems to have been made in any of these for the past six or seven years.

Armstrong Siddeley.

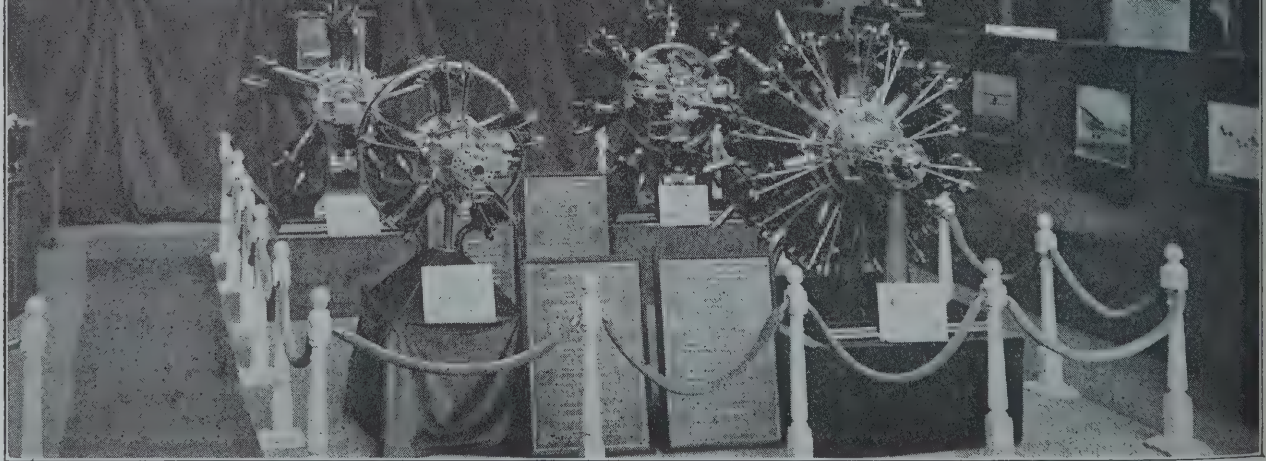
Armstrong-Siddeley Motors Ltd., Coventry, England.

The Armstrong Siddeley exhibit included the Genet five-cylinder engine, now rated up to 80 h.p. in place of the original 65 h.p., the five-cylinder Mongoose Mk. II of 120 h.p., the Lynx seven-cylinder 220 h.p., and the Jaguar fourteen-cylinder 400 h.p.

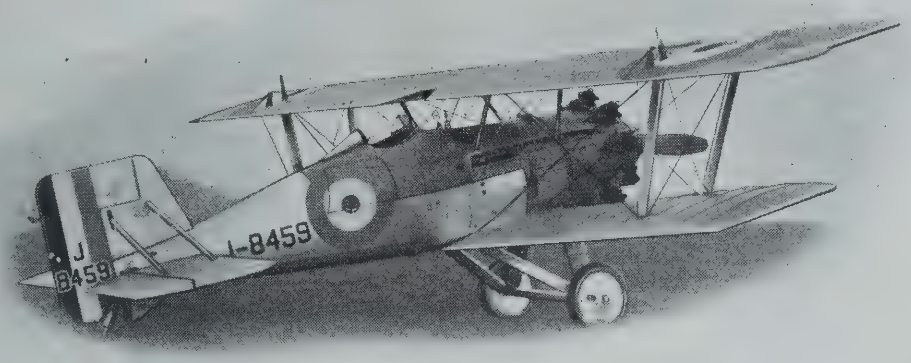
All these engines are of the now well-known Armstrong Siddeley construction. A fairly full account of the most recent type of Lynx engine appeared in The Aeroplane of July 4. The Mongoose and the Jaguar differ from the Lynx in respect of number of cylinders, but employ the same cylinders and a considerable number of their parts are interchangeable. The Genet has cylinders of smaller bore and stroke, but is in all essentials of the same design as the larger series.

It is therefore not necessary to recapitulate details of design and construction of these engines here. It may suffice to say that the finish and workmanship of these engines was of the standard expected of a firm such as Armstrong Siddeley motors, and that it attracted much attention in the Salon.

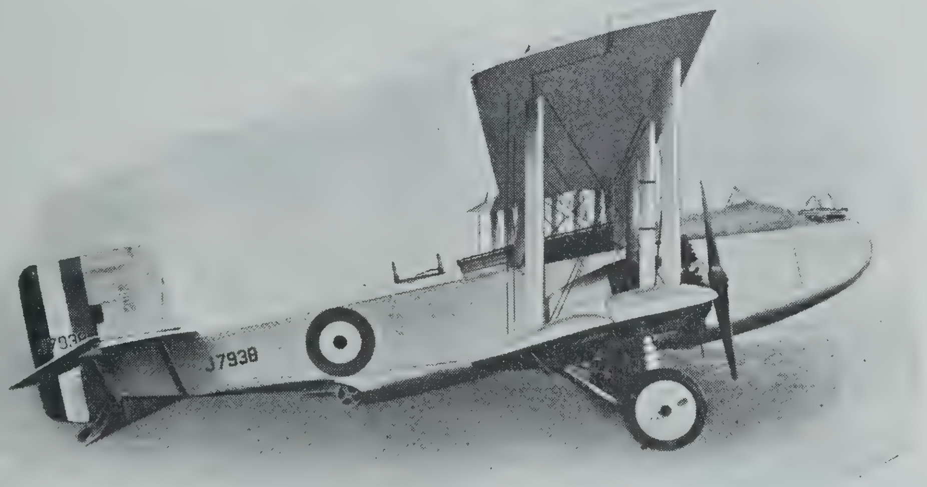
The performances of the Lynx and Jaguar, both in military and civil aircraft, are world famous, and have undoubtedly played a part in producing the outbreak of air-cooled radial



THE ARMSTRONG SIDDELEY STAND AT PARIS.—In the foreground are the Genet (left) and Jaguar (right), with the Mongoose (left) and Lynx in the background.



The Boulton & Paul "Partridge" single seater fighter of all-metal construction.



Boulton & Paul All-metal "Sidestrand" Day Bomber. Chosen recently after exhaustive tests as a Royal Air Force Service Machine.

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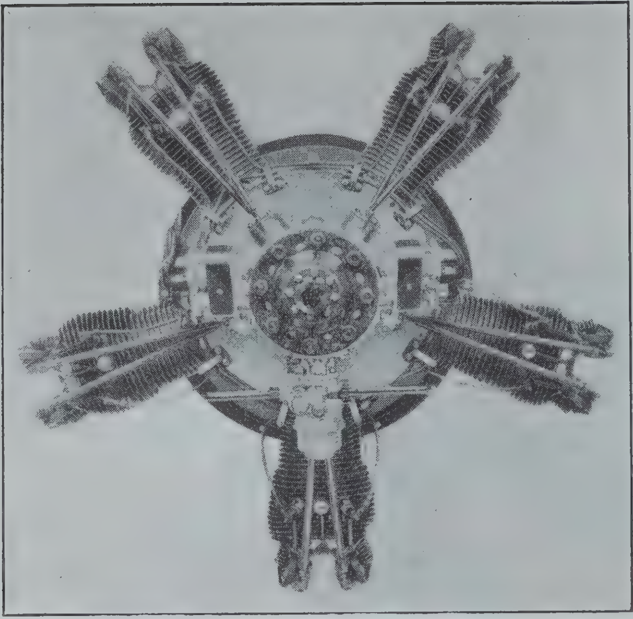


The 150 h.p. Armstrong Siddeley Mongoose Mk. II engine.

engines which is so prominent a feature of the present Salon. At least one of the new series of such engines now being produced in France—the Lorraine-Dietrich air-cooled radials—are definitely descended from the Armstrong Siddeley parents, and although they are not duplicates of the British-made engines their existence is a high tribute to their British originals.

B.M.W.

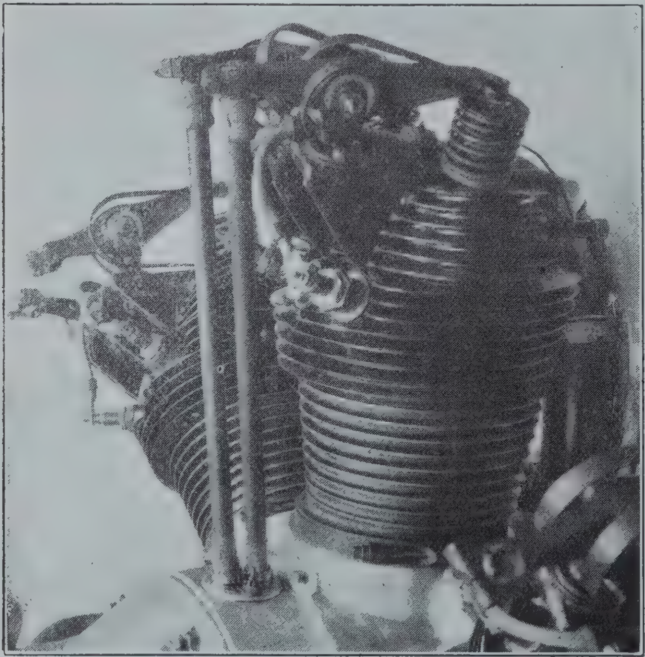
Bayerische Motorenwerke, München, Germany.

The B.M.W. stand had on its specimens of the six-cylinder vertical B.M.W.-Va of 320 normal h.p., the relatively new B.M.W.-VI twelve-cylinder Vee of 500 normal h.p., and a Pratt and Whitney Hornet air-cooled radial of 525 h.p., which the firm is now starting to build in Germany under licence.

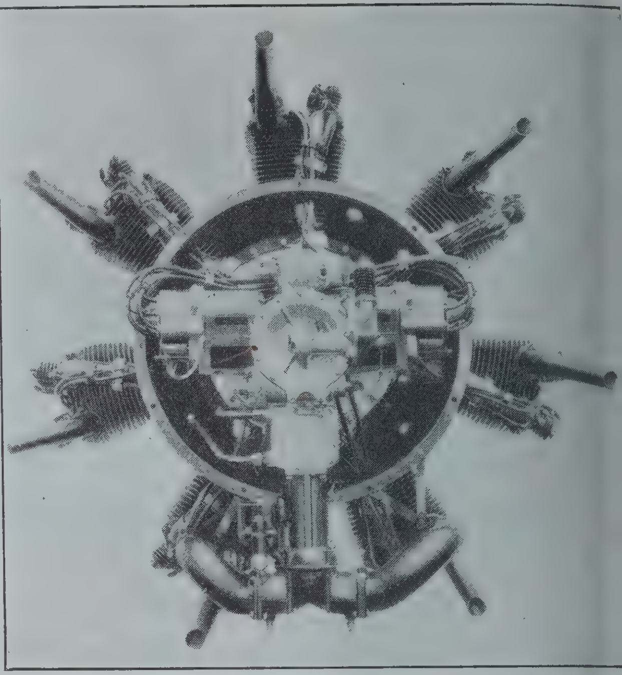
The B.M.W.-Va is probably the most widely used of German engines, as it is practically the standard water-cooled engine for German civil aircraft of other than Junkers manufacture.

It is a straight six, with separate cylinders, sheet steel jacketed, fitted with the usual type of enclosed overhead valve gear.

The war-time B.M.W. engines were all of the high-compression type with oversize cylinders, designed to develop maximum output at high altitude. The present B.M.W. engines are still really of this type, with the result tha they are capable of developing very much more than their rated output for a comparatively short time—a point of considerable value for taking-off heavily loaded commercial aircraft under adverse conditions. The Va engine is rated at 320 b.h.p. normal, but in the lowest compression ratio (5. to 1) it is permissible to run at 360 h.p. for one hour. With a 6 to 1 compression 380 h.p. may be taken for one hour, and with 7.3 to 1, 395 b.h.p. may be held for the same period.



Cylinders and valve gears of the Armstrong Siddeley Lynx engine.



Rear end view of the Armstrong Siddeley Lynx engine showing the compact arrangement of auxiliaries inside the circumference of the mounting cone.

The recent models of this engine are fitted with plain thrust bearings instead of the usual ball-thrust. Presumably this bearing is of the Mitchell type. Centrifugal oil cleaners are fitted as standard equipment.

Either the well-known B.M.W. carburettor or the Zenith type may be fitted as desired. The adoption of the Zenith has been dictated by the increasing use of the engines out of Germany, and the relative ease of obtaining Zenith spares under those conditions. Moreover it is an advantage to have a familiar type of carburettor whose adjustment to varying fuels, etc., is fairly universally understood.

The B.M.W.-VI has twelve cylinders identical with those of the Va arranged in two rows at 60°. It has the same capacity for operating for one hour at a load markedly in excess of its rated power. The normal output is 500 h.p. at approximately 1,400 r.p.m. A maximum of 700 h.p. is available for one hour in the 7.3 compression type and of 600 in the 5.5 compression engine. This engine may be supplied with or without an airscrew reduction gear, and both it and the Va type may be had with magnesium alloy crankcases and other parts at a notable saving in weight.

The remarkably low fuel consumption for which B.M.W engines are famous is maintained in the present engines. Both the Va and the VI use well under .5 lbs. of fuel per h.p hour even in the 5.5 compression types.

The Hornet shown is of Pratt and Whitney manufacture as the first engine actually made by the B.M.W. works is still on the test-bed, where it is doing exceedingly well. The engine is shown complete, so that no details of its "innards" are visible, but the engine has already been described fairly fully in this paper.

It is a nine-cylinder radial air-cooled engine, with totally enclosed valve gear, which looks remarkably small and compact for its normal output of 525 h.p. To some extent this is accounted for by its relatively high speed of rotation of 1,900 r.p.m.

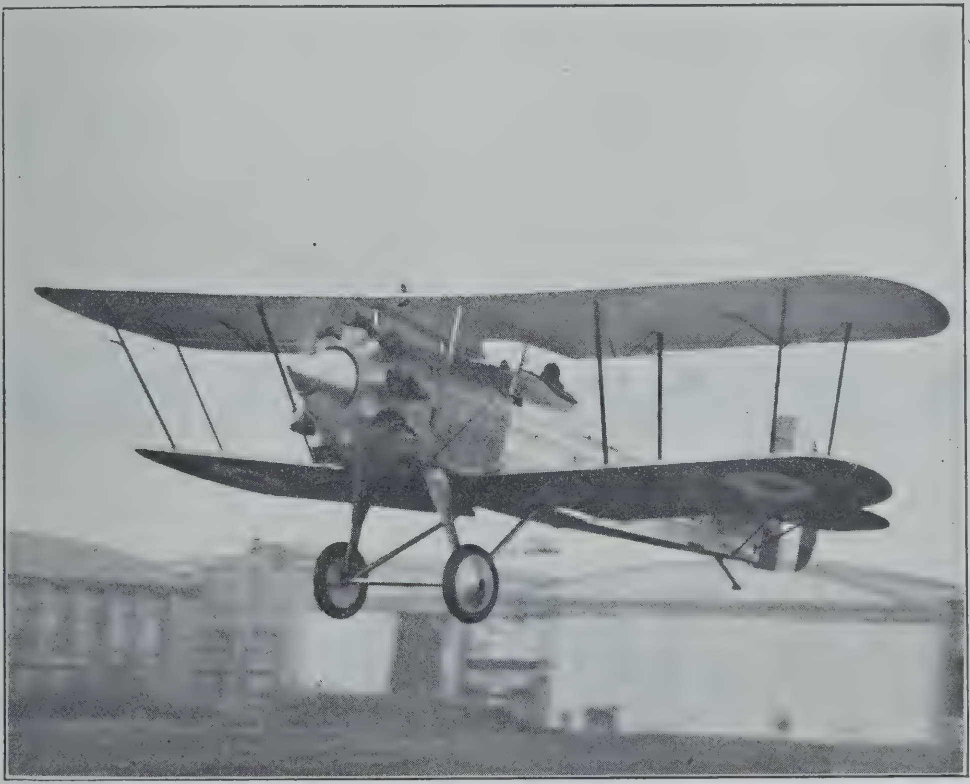
The engine can now be supplied fitted with a reduction gear, which should add considerably to its usefulness for commercial and other heavy duty services.

Bristol.

The Bristol Aeroplane Co. Ltd., Filton, near Lristol, England

The Bristol engine stand unfortunately was tucked away under the staircase leading up to the gallery, and only after a good deal of persuasion could the Salon authorities be moved to provide adequate artificial illumination. Consequently this exhibit attracted mainly only those seriously

HAWKER AIRCRAFT



"Aeroplane" Photograph.

The Hawker "Hawfinch" is a new single-seater machine for day or night fighting, representing the latest developments in this class. It incorporates the Hawker patent system of metal construction, thereby facilitating production and reducing maintenance problems.

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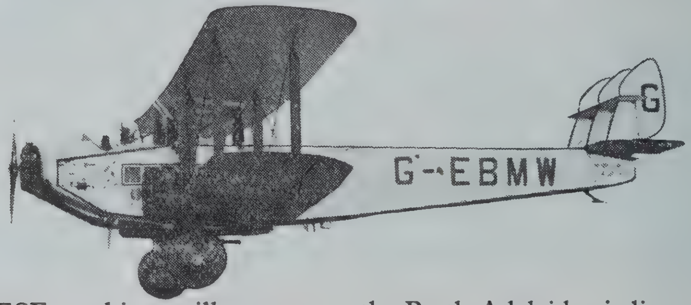

The D.H.66 "Hercules" is generally recognised to be the fastest three-engined commercial machine in the world. It will fly fully loaded with any one of its three 450 h.p. Bristol "Jupiter" engines stopped, manoeuvring perfectly and even gaining altitude. With two engines inoperative, and fully loaded, it descends at the rate of 200 to 300 ft. per minute at a forward speed of 80 m.p.h. This means that it can, from a height of 4,000 ft., assuming no wind, reach an aerodrome 30 miles distant.

THESE machines will operate on the Perth-Adelaide air line : the service will be run weekly in both directions. The four "Hercules" are sister machines to the five that have given 100 per cent. reliable service on the Imperial Airways Ltd.'s route from Cairo to Basra for the past 18 months—a record for regularity which no doubt influenced the Company in its decision.

Each machine has accommodation for 14 passengers and 2,200 lbs. of mails. The latter are housed in a special lock-up and fire-proof compartment. Cabin comfort is exceptional. A marked degree of silence is obtained through careful engine silencing, and an efficient system of ventilation assures coolness without local draughts.

It is a significant tribute to the design and performance of de Havilland Aircraft that the "Hercules" should be chosen from the pick of the world's air liners. Incidentally, the D.H. "Moth," the best light aeroplane in the world, is extensively used for training purposes by the Royal Australian Air Force.

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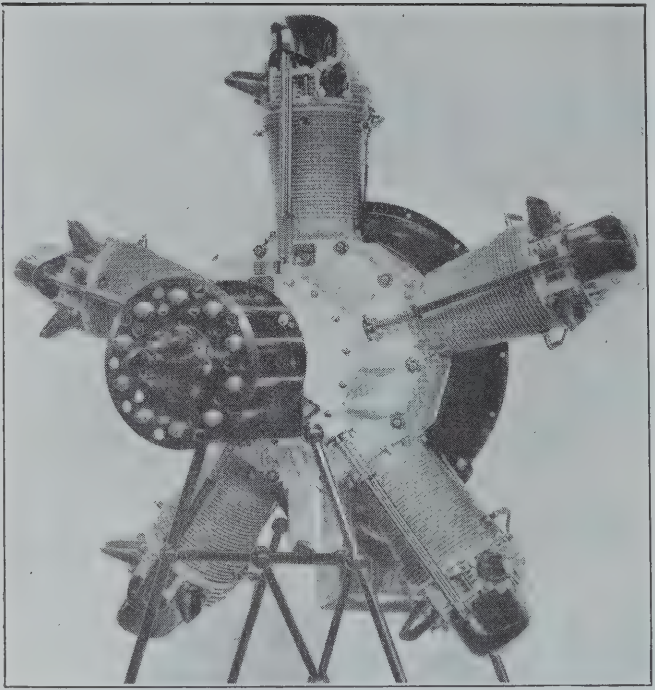


The Bristol Titan engine at the Paris Show.

interested in it, which, perhaps, was not altogether a disadvantage.

The engines on the stand were three Jupiters, one of the Series VI.A (normal compression) for civil service, one Jupiter VII with the gear-driven supercharger, and one Series VIII geared engine. All these engines were fitted with the valve-gear covers, which are now standard on Bristol engines. These are found effectively to prevent the splashing of wind-screens with oil, and in addition protect the valve gear from rain and dust. The covers are very light aluminium pressings, and are held in place by one screw and a series of four dowel-pins. Any coin will serve as a screw driver to remove them.

Another innovation is to be found in the back cover of the Jupiter VI, which has now been entirely re-designed. In the new arrangement the magnetos are at right angles to the crankshaft instead of being skewed, which considerably reduces the over-all projection of the engine behind the mounting. The engine is provided with a conical mounting ring, considerably larger in diameter than the crankcase bolt circle previously used for mounting.

This permits the engine to be drawn straight out of the machine to which it is fitted without disturbing any of the auxiliaries on the back cover. A mounting for an Eclipse hand or electric Inertia starter is provided, and a hand starter of this type is shown fitted.

Finally the whole back cover assembly, with the induction spiral may be removed from the engine, and an interchangeable unit which includes a gear-driven supercharger may be fitted in its place without disturbing the engine proper in a very short time.

This new back cover looks even neater than did the original remarkably compact arrangement, and the advantage, particularly from the service point of view of the interchangeability of the supercharged or the normal induction system, is obvious.

The other engine shown is the new Bristol Titan, with five cylinders, interchangeable with those of the Jupiter. This engine is also fitted with a back cover very like that on the new VI, carries an Eclipse starter, and has the new valve covers.

Although the Titan is a new engine so far as England is concerned, the French-built version seems already to have achieved a wide popularity on the Continent, and it should find many uses in this country.

SPECIFICATION OF THE TITAN ENGINE.

TYPE.—Five-cylinder air-cooled radial.

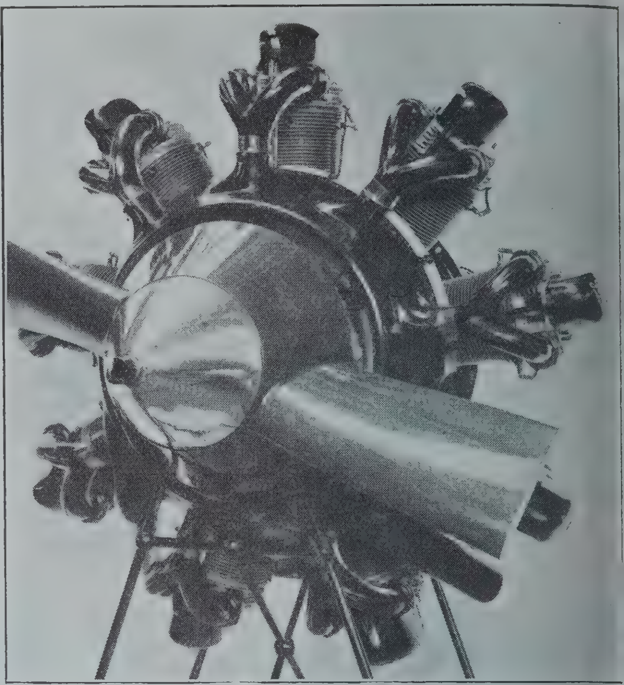
CYLINDERS.—$5\frac{3}{4}$ in. (146 m/m.) bore, $6\frac{1}{2}$ in. (165 m/m.) stroke, 5.3 or 5.0 compression. Steel barrels with closed heads to which an aluminium "poultice" is fixed. Interchangeable with Jupiter cylinders.

PISTONS.—Aluminium alloy, interchangeable with Jupiter pistons.

CONNECTING-ROD ASSEMBLY.—Master rod with unsplit big-end, and one piece floating bush between big-end and crank-pin. Auxiliary rods run on anchor pins in big-end forging.

CRANKSHAFT.—Built-up single-throw type. The crank-pin and front crank web and airscrew shaft are in one piece. The rear end of crank-pin is keyed and clamped into the rear crank-web, which is integral with the tail shaft.

CRANKCASE.—Two main castings, split on central plane of cylinders form the main body, which includes the cam-casing in front, a support for rear end of crankshaft and induction casing at the back.



The Bristol Jupiter VI shown at Paris, with spinner and standard exhaust ring. Note the valve gear covers.

A front cover, carrying the front crankshaft bearing and thrust race, and a rear cover with auxiliary drives completes the assembly.

VALVE-GEAR.—Four overhead valves per cylinder are operated through push-roads and rockers from a two-row cam-ring concentric with and epicyclically-driven from the crankshaft. Temperature compensation gear as on the Jupiter is used to keep tappet clearances constant.

INDUCTION SYSTEM.—A Bristol Duplex carburettor supplies mixture to a casing in the rear crankcase casting. In this is a centrifugal fan driven direct from crankshaft. An induction elbow between carburettor and fan is jacketted with oil from scavenger pump.

LUBRICATION.—Dry sump system with gear type scavenge and pressure pumps. Pumps and filters, mounted in rear crankcase cover, are easily removable for inspection and cleaning.

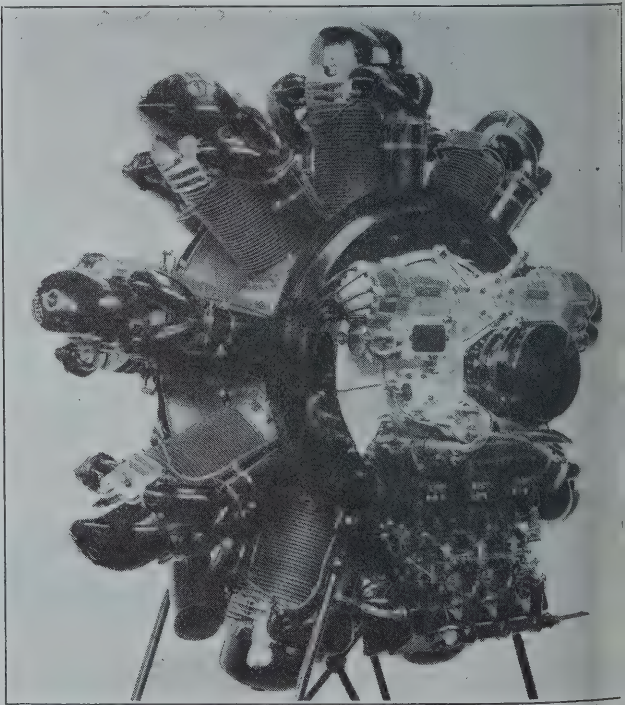
IGNITION.—Two B.T.H. magnetos give dual ignition.

STARTING.—An Eclipse inertia starter may be fitted, and the usual Bristol gas distributor system may be fitted.

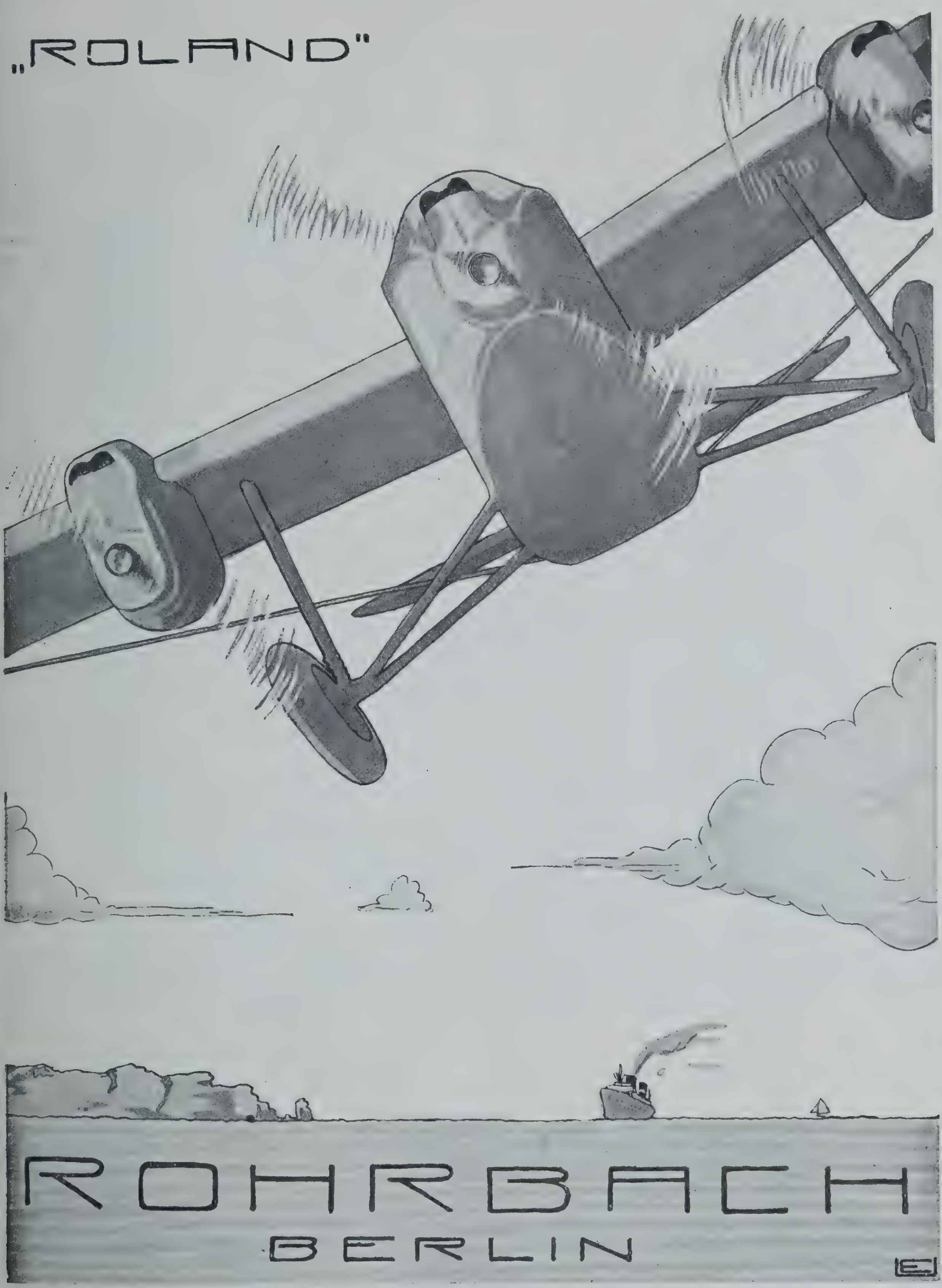
MOUNTING.—A conical pressed steel stamping is attached to the rear of the crankcase, for attachment to the aeroplane fuselage.

WEIGHT.—Complete (without oil) 500 lbs.

PERFORMANCE.—Normal output (5.3 compression) 220 b.h.p. at 1,700 r.p.m., Maximum 240 h.p. at 1,870 r.p.m. Normal output (5.0 compression) 200 h.p. at 1,700 r.p.m., Maximum 220 at 1,870 r.p.m., Fuel consumption 13/14 galls. per hour, Oil consumption 2 pints per hour.



The new rear cover and mounting ring of the Bristol Jupiter VI. The black box on the end of the cover is an inverted starter.



IF . . . . .

If one engine fails, what———?
Most aeroplanes equipped with two engines, or three, would be compelled to make a forced landing in this case.
Forced landing, that means: late arrival, perhaps danger to passengers, pilot and craft.

There is only one three-engined all-metal aeroplane in the world which maintains straight level flight (under full load) with only two engines running:

THE "ROHRBACH ROLAND."

Fairchild Caminez.

The Fairchild Aviation Corporation, Farmingdale, Long Island, N.Y.

On a stand in the gallery, unmentioned in the catalogue, and surrounded by patent coffee-making machinery, there is a partly sectioned Fairchild Caminez Cam engine. Thanks to the persistence of Mr. Cyril Turner, who is the Fairchild representative in Paris, most of the visitors to the Salon who could seriously be interested in this engine were enticed there to see it.

The essential features of this very novel engine are by now well known. It has four radial air-cooled cylinders arranged as opposed pairs. In place of a crankshaft there is a shaft bearing a cam having a "figure-of-eight" profile and each piston is provided with a large rollers bearing on this cam.

As the shaft rotates the cam pushes each piston out to the top of its stroke twice in each revolution, and opposite pistons are thus pushed simultaneously. The four pistons are coupled together by a system of links, one link from each end of each gudgeon-pin running to the gudgeon-pin of each adjacent piston.

Thus when one pair of opposite pistons is pushed outwards by the cam the other pair of pistons are pulled inwards. Thus the cam arrangement takes the place of a crankshaft but produces four complete strokes of each piston instead of two in every revolution.

It is thus in effect crankshaft and two-to-one reduction gear rolled into one. As the pistons work at twice the speed normally corresponding to the shaft revolutions no two-to-one gear is needed to drive the valve cams, and the engine becomes a very simple mechanism.

The feature which necessarily arouses the greatest curiosity is the cam-gear, and many people naturally want to know whether there is any sign of slack between piston rollers and cam, and how long the gear will last before developing such slack.

There certainly is no slack in the engine shown, which shows that a very accurate cam-form has been produced. The question as to life can naturally only be settled by experience, but a very ample bearing width is provided on the piston rollers, and wear should be slow. The cam is splined onto the main shaft, and therefore is replaceable, and once the tools for producing it are in existence this replacement should not prove expensive.

Quite a number of these engines have already come into use, and some of them have already flown for several hundred hours without trouble, so that it seems that the cam-gear does not wear seriously.

Apart from the drive, the engine follows standard practice. The cylinders are steel, with aluminium heads screwed on, and then apparently pressed or rolled to force part of the head material into a groove in the steel barrel. Finally a steel ring is shrunk on over the joint.

Two large overhead valves are operated by push-rods and rockers, and the rocker-arm bracket is supported at its outer end by a steel bit-rod running down to the crankcase. This arrangement provides a temperature compensation for cylinder expansion, which tends to maintain valve clearances constant, hot or cold, much as does the Jupiter compensating gear.

Farman.

Société des Avions H. and M. Farman, Rue de Silly, Billancourt, Seine.

The Farman engine exhibit included two of the well-known 12-cylinder W type Farman engines, now rated up to 550 h.p., one of them fitted with a gear-driven supercharger, and another of the normal type. In addition, the newer 600 h.p. eighteen-cylinder upside-down W type was shown in the normal condition, together with one on the aeroplane stand, fitted with a gear-driven supercharger.

The earlier 12-cylinder Farman engine with its cylinders in widely separated blocks of two was always a rather untidy-looking and bulky affair, excellently as it performed. The new inverted 18-cylinder engine has each of its rows of six cylinders in one aluminium block, and is a very much more compact-looking engine altogether. It is if anything shorter than the older 12, and has distinctly a smaller frontal area.

As the older engines have frequently been described, and a complete description of the newer engine appeared in The Aeroplane of August 24, 1927, there remains little to be said on the subject.

The superchargers fitted to both Farman engines are of Rateau type, and apparently have two-stage blowers. They are somewhat bulky affairs compared with the blowers fitted to British engines of similar output.

There are also to be seen on the Farman stand samples of the Farman bevel-reduction gear as fitted to a variety of engines, including the Jupiter, Hispano-Suiza, B.M.W., and several other makes.

Gnome-Rhone.

Société des Moteur Gnôme et Rhône, 34, Rue de Lisbonne, Paris.

The chief feature of this stand is naturally the Jupiter engine, which is shown in two versions, the geared type, rated at 480/600 h.p., and an engine with a gear-driven supercharger to develop 400 h.p. at 4,000 m. (13,000 ft.). These engines are of course almost identical with the Bristol-built engines, the differences in detail being confined almost entirely to the arrangement of the auxiliary gear on the back cover. There is also the difference that the Gnôme-Rhône engines still have cast instead of forged crankcases, which seems surprising considering how much forged aluminium alloys seem to be used in France.

The explanation apparently is that with the large output—said to be 70 per week—which the works have attained a good deal of time is needed for the change over in production methods.

The differences in auxiliary gear arrangement in the French engines are in some part due to the necessity for providing drives for A.M. or other equivalent petrol pumps, the absence of provision for C.C. gun gear, and similar variations in standard equipment. On the whole the after end of the French engines is rather more compact than that hitherto standard on British engines, but less so than the new rear-end arrangement shown on the Bristol stand.

The Titan, five-cylinder engine of 230 h.p., is also to be seen. This seems to be undistinguishable from the Bristol edition except for the use of a different type of magneto, and the absence of the Eclipse starter.

Two rotary engines—the 80 h.p. and 120 h.p. Le Rhône—are also on show. There seems to be a never failing demand for these engines for training machines, and the rotary engine department at the Gnôme-Rhône works is reported to be quite busy, even to-day.

Hispano-Suiza.

Société Hispano-Suiza, Rue du Capitaine Guynemer, Bois-Colombes, Seine.

In addition to the already well-known 180 h.p., and 300 h.p., eight-cylinder Vee type, the 500 h.p. twelve-cylinder Vee type and the 600 h.p. 12-cylinder W type Hispano-Suiza engines there are at the Salon a number of new engines of this make.

The two really new engines are two very nice-looking straight sixes of 100 and 250 h.p. The latter is made in both the direct drive and in the geared types.

Then there is a 600 h.p. Vee, which is the 500 h.p. type, with an increased stroke, a new 650 h.p. Vee, and a new 500 h.p. Vee of reduced bore and long stroke, each of which is made either geared or ungeared.

The original 500 h.p. Vee may also be supplied with a reduction gear.

The reduction gear used on all these engines is of the Farman bevel type.

Except that the sixes are straight-line engines and for the presence of gears nothing distinguishes these new engines in appearance from the earlier Hispano-Suizas. They have all that characteristic cleanliness of line and beauty of finish characteristic of this make, and that is about all that can be said of them.

There is also a sample, Wright-built, of the Wright Whirlwind engine, a licence for which has been acquired by the Hispano-Suiza firm.

Types of Hispano-Suiza Engines.

Type 8 Aa, 8 Ab.—8-cylinder Vee, 120 m/m. bore, 130 m/m. stroke, Weight 195 kg. (418 lbs.). 8 Aa, Compression 4.7, output 150 h.p. at 1,500 r.p.m. 8 Ab, Compression 5.3, output 180 h.p. at 1,800 r.p.m.

Type 8 Fb, 8 Fe.—8-cylinder Vee, 140 m/m. bore, 150 m/m. stroke, Weight 270 kg. (594 lbs.). 8 Fb, Compression 5.3, output 300 h.p. at 1,800 r.p.m. 8 Fe, Compression 5.5, output 330 h.p. at 1,870 r.p.m.

Type 12 Ja, 12 Jb.—12-cylinder Vee, 120 m/m bore, 150 m/m. stroke, Weight 355 kg. (781 lbs.). 12 Ja, Compression 5.3, output 350 h.p. at 1,800 r.p.m. 12 Jb, Compression 6.0, output 400 h.p. at 2,000 r.p.m.

Type 12 Ha, 12 Hb, 12 Hbr.—12-cylinder Vee, 140 m/m. bore, 150 m/m. stroke. Weight, 12 Ha and 12 Hb, 415 kg. (913 lbs.). 12 Hbr, 460 kg. (1,012 lbs.). 12 Ha, Compression 5.3, output 450 h.p. at 1,800 r.p.m. 12 Hb and 12 Hbr, Compression 6, output 500 h.p. at 2,000 r.p.m. Type 12 Hbr has 2 to 1 airscrew reduction gear.

Type 12 Kb.—12-cylinder W, 140 m/m bore, 170 m/m. stroke. Weight 415 kg. (913 lbs.). Compression 6, output 600 h.p. at 2,000 r.p.m.

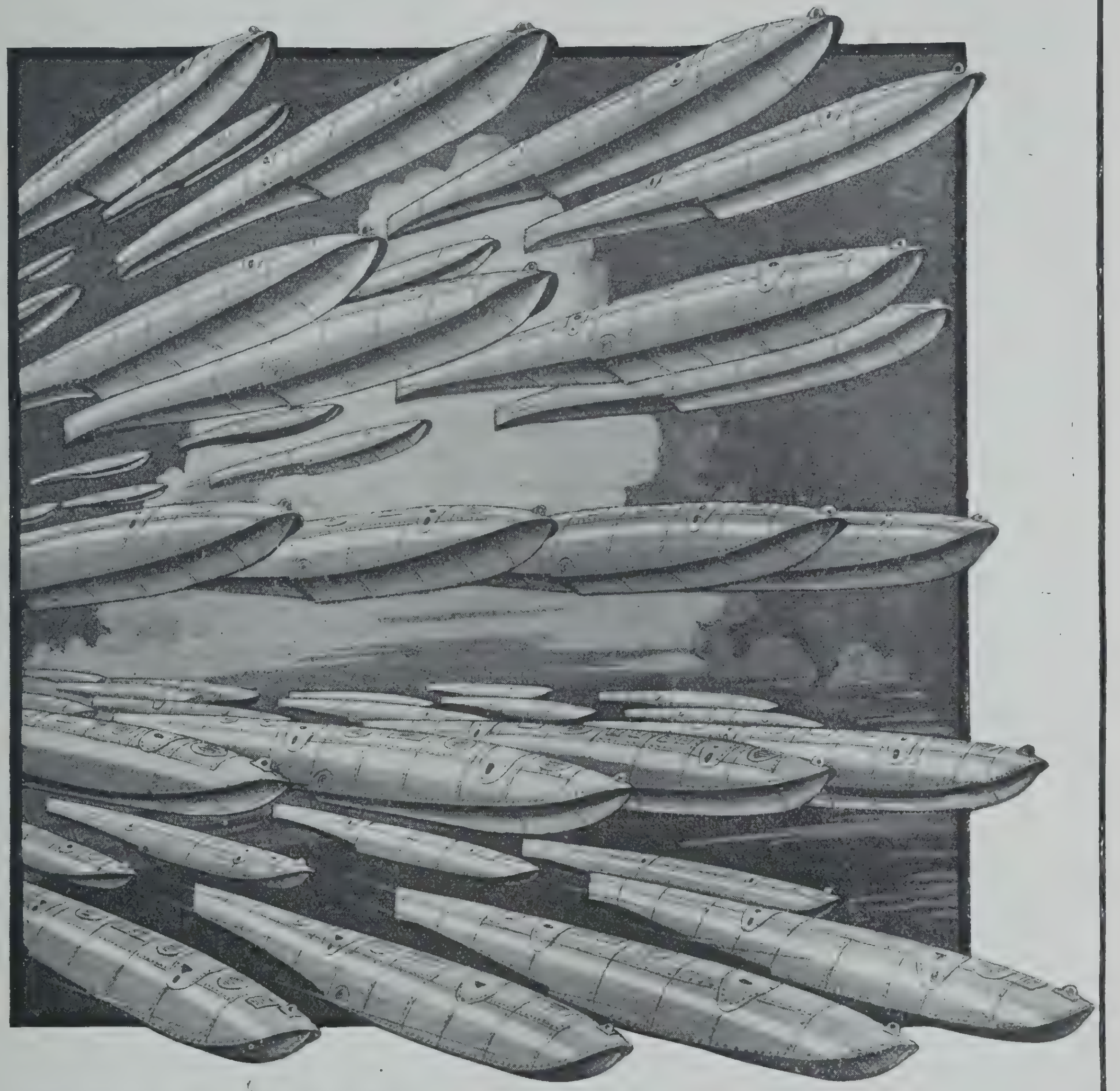
Type 12 Lb, 12 Lbr.—12-cylinder Vee, 140 m/m. bore, 170 m/m stroke. Weight, 12 Lb, 430 kg. (946 lbs.). 12 Lbr, 475 kg. (1,045 lbs.). Output 600 h.p. at 2,000 r.p.m. Type 12 Lbr with 2 to 1 reduction gear.

Type 6 Pa.—6-cylinder vertical. 100 m/m bore, 140 m/m stroke, Weight 150 kg. (330 lbs.), Compression 5.5, output 100 h.p. at 1,800 r.p.m

Type 6 Mb, 6 Mbr.—6-cylinder vertical, 130 m/m bore, 170 m/m stroke. Weight, 6 Mb, 250 kg. (550 lbs.). 6 Mbr, 290 kg. (638 lbs.). Compression 6, output 250 h.p. at 2,000 r.p.m. 6 Mbr with reduction gear

Type 12 Mb, 12 Mbr.—12-cylinder Vee, 130 m/m. bore, 170 m/m stroke Weight, 12 Mb, 400 kg. (880 lbs.). 12 Mbr. 445 kg. (979 lbs.). Compression 6, output 500 h.p. at 2,000 r.p.m. 12 Mbr with reduction gear.

Type 12 Nb, 12 Nbr.—12-cylinder Vee, 150 m/m. bore, 170 m/m. stroke Weight, 12 Nb, 455 kg. (1,001 lbs.). 12 Nbr, 500 kg. (1,100 lbs.) Compression 6, output 650 h.p. at 2,100 r.p.m.



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Isotta Fraschini.

La Fabrica Automobili Isotta Fraschini, Milan.

There was quite an imposing show of engines on this stand, consisting of the already well-known 500 h.p. twelve-cylinder "Asso" water-cooled engine, another of the same type with a reduction gear of 1 to 2.17 ratio, the new 1,000 h.p. three-row W type eighteen-cylinder water-cooled engine, known as the "Assо 1,000," and the air-cooled twelve-cylinder Vee 430/500 h.p. engine, which was described in THE AEROPLANE of May 30.

The big three-row engine is claimed to be the most powerful aero-engine as yet in service. It is, like most Italian engineering products, a beautifully finished job, with separate steel-jacketed cylinders, and twin overhead camshafts, one driving inlet and the other exhaust valves, precisely as in the Asso. Dimensions could not be obtained, but the engine is said to develop 1,000 h.p. at 1,600 and 1,100 h.p. at 1,750 r.p.m. for a dry weight of 785 kg. (1,727 lbs.), and a petrol consumption of 220 grams (.484 lbs.) per h.p. hour.

The air-cooled engine naturally excited a great deal of interest, which centred mainly on the problem of the cylinder-head cooling. As far as it is possible to discover by inspection, the cylinder barrels of steel have closed heads with valve seats in the head, with a "poultice" (aluminium or magnesium) containing valve passages screwed down on to the barrel.

After a vast amount of experiment the Bristol Company have discovered how to make a sound job of holding such a "poultice" on to the cylinder. The I.F. head is apparently held in place by four studs about 4 mm. diameter with ring-nuts, which can only be tightened up by a small Tommy-bar, and it seems scarcely possible that adequate contact between poultice and head can be maintained.

Junkers.

Junkers Motorenbau G.m.b.H., Dessau.

The Junkers firm showed the L55 twelve-cylinder Vee engine, ordinarily rated at 500 h.p., but in this case equipped with a gear-driven supercharger and rated to deliver 600 h.p. normal at 1,550 r.p.m. and 570 h.p. at 5,500 m. (18,000 ft.). The supercharger, of centrifugal type, very closely resembles outwardly the Rateau supercharger fitted to the Farman engines.

The engine proper is exceedingly like the B.M.W.VI. It has separate steel cylinders, with welded steel jackets, overhead camshaft, totally enclosed, with rocker arms protruding from the case, and has all its auxiliaries, except the oil pumps, mounted on the rear of the crankcase. Oil pumps, with filters, are attached to the bottom rear end of the crankcase.

MAIN DIMENSIONS, ETC.—Bore 160 m/m., Stroke 190 m/m., Compression 5, 5.5 or 7, Overall length 1,777 m. (45.2 in), Height 1,273 m. (32.2 in.), Width .84 m. (21.2 in.), Weight dry, without supercharger, 575 kg. (1,265 kg.).

PERFORMANCE.—Rated output 500 h.p. at 1,380 r.p.m.(all types), Maximum output at 1,640 r.p.m., 5.0 Compression 550 h.p.; 5.5 Compression 600 h.p.; 7 Compression 625 h.p. Fuel consumption 0.23 kg./h.p. hour (.506 lbs./h.p. hr.).

Lorraine-Dietrich.

Société Lorraine des Anciens Etablissements de Dietrich et Cie., Route de Bezons, Argenteuil, Seine-et-Oise.

The Lorraine exhibit includes the twelve-cylinder W type 450/500 h.p. engine in both geared and ungeared types, the 650/750 eighteen-cylinder W type, all of the well-known water-cooled type with cylinders of 120 mm. bore by 180 mm. stroke, all of them widely used and tried engines, showing no features not seen before.

In addition there is the complete range of the newer Lorraine air-cooled radials. Of these the seven-cylinder 230/270 h.p. engine, and the fourteen-cylinder 470/500 h.p. double-row type were shown at the last Salon eighteen months ago.

New since that show is the five-cylinder engine of 100 h.p. These three engines have been designed and manufactured in conjunction with Armstrong Siddeley Motors Ltd., and show very similar features to those of the Mongoose, Lynx, Jaguar series throughout their detail design.

The 100 h.p. five-cylinder engine has cylinders 125 mm. bore by 140 mm. stroke, and corresponds roughly to the British Mongoose. The seven and fourteen-cylinder engines have cylinders 135 mm. by 150 mm. and are thus somewhat larger than the British Lynx and Jaguar, which they otherwise resemble closely.

Panhard.

Société Anonyme des Anciens Etablissements Panhard et Levassor, 19, Avenue d'Ivry, Paris.

Panhard and Levassor continue to exhibit the 500 h.p. high-compression over-dimensioned poppet valve engine, and the 500/550 Knight sleeve valve engine, which have been at all the Paris Salons since the war. In addition, they show a number of Knight-valve motor-car engines.

Renault.

Société Anonyme des Usines Renault, 15, Rue Gustav-Sandoz, Billancourt, Seine.

At each successive show at the Grand Palais the Renault firm show an increasing number of engines, many of them entirely indistinguishable either one from another, or from engines previously shown, except for minor differences in the nominal h.p. mentioned on the labels attached to them.

On their present stand there are twelve-cylinder water-cooled Vees, all apparently precisely alike but of 570, 550, and 450 h.p. direct drive, and of 570 and 500 h.p. with geared drives. Except for the presence or absence of gear cases these engines show no recognisable external difference, and presumably differ only in compression ratio and normal speed of revolution. They are all essentially the now well-known Renault of 450/500 h.p., which has been extensively used in French military machines for the past five or six years.

An engine which is equally indistinguishable from the type shown at the last Salon as a 700 h.p. type now appears rated at 750 h.p. This is shown both geared and ungeared.

This variety of ratings for a more or less standard type of engine is, of course, natural in the case of a power-plant which has behind it a long history of development and is in extended use in a variety of types of aircraft. In the absence of any detailed information as to the causes for these different ratings it is apt to be confusing.

A complete novelty—a nine-cylinder air-cooled radial of 250 h.p. was also shown. As in the case of the water-cooled engines, there was no one on the stand able or willing to supply technical data as to this engine. It is understood that it is yet in a very early stage of development, and has not yet run. In outward appearance it looks like a cross between a Wright Whirlwind and a Pratt and Whitney Wasp, and it is very large for its nominal power.

Rolls-Royce.

Rolls-Royce, Ltd., 14-15, Conduit Street, London.

During the second week of the Paris Aero Show a new British exhibit made its appearance. This was one of the new Rolls-Royce "F" type engines of 480 h.p. This engine was shown on a stand in one of the sub-galleries, and attracted a great deal of attention on account of its cleanness of outline and exceeding compactness.

A description of this type of engine appeared in THE AEROPLANE for July 4.

Salmson.

Société des Moteurs Salmson, 162, Rue du Pont du Jour, Billancourt, Seine.

This firm show a complete range of radial engines, of both the water and air-cooled type, including nothing that is not already well known. These Salmson engines are exceedingly well made, and certainly in the single-row types of up to 250 h.p. they appear to give very satisfactory service.

The 500 h.p. eighteen-cylinder water-cooled type does not as yet appear to have achieved the same popularity as have the smaller types, but this is probably the result rather of the competition of the 450 h.p. air-cooled radials than to defects in the engine itself.

The engines shown are the 9 A.C. 40 h.p., the 5 A.C. 60 h.p., 9 A.C. 120 h.p. and 9 A.B. 230 h.p., all air-cooled, and the 9 C.M. 260 h.p. and 18 C.M.b 500 h.p. water-cooled. In each case the numeral denotes the number of cylinders.

All these engines are well known and have been described in connection with previous exhibitions.

Siemens-Halske.

Siemens und Halske A.G., Berlin, Siemenstadt.

The most interesting exhibit on the Siemens-Halske stand was a partly sectioned 160 h.p. rotary engine of the type produced during the last year of the war. This engine has a bevel gear, rather like the differential of a motor-car, between crankcase and crankshaft, so that the shaft rotated in one direction, the engine proper in the other. This permitted the use of much higher engine speeds than was otherwise possible in a rotary, and but for the end of the war the type might have given the rotary a new lease of life.

This historical relic is an example of most highly-finished workmanship, which rather tends to dispose of the theory that German industry and ingenuity was in the last stages of exhaustion by 1918.

The other exhibits consist of samples of the S.H.11 7-cylinder 84/95 h.p., the S.H.12 9-cylinder 108/125 h.p. air-cooled radials, both well-established engines for the lighter civil classes of aircraft.

In addition, a Siemens-built Jupiter engine is present. This differs from the Gnome-Rhone Jupiter in that the fins on the cylinders are concentric with the bore, instead of being deeper at the back of the cylinders.

This is said to be because German Jupiters are made to be used in tandem on Dornier "Wal" and "Super-Wal" machines, and that the pusher engine in such an arrangement would need reversed excentricity to secure proper cooling.

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New York-Germany.

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THE ARMSTRONG SIDDELEY GEARED JAGUAR ENGINE.

The new Armstrong Siddeley Jaguar engine with an airscrew reduction gear, which is to be used on Imperial Airways Argosy machines, and will doubtless find many other applications in aircraft of all types, has recently passed the Air Ministry 100 hours type test.

The fitting of a reduction gear to this engine allows, firstly an increase in the rated r.p.m. of the engine and a consequent increase in output, and at the same time permits the use of a slower running and more efficient airscrew. The gross effect is appreciably to increase the level speed of the machine to which the engine is fitted, but still more largely to improve the get-off and climb, particularly in the case of heavily-loaded aeroplanes.

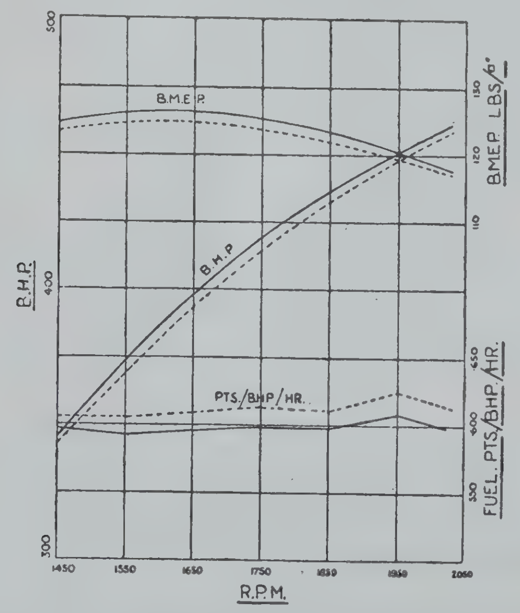
The engine just type-tested has a compression of 5 to 1, and on test developed an output of 461 b.h.p. at 2,035 r.p.m., and otherwise as is shown in the power curve reproduced.

The Reduction Gear.

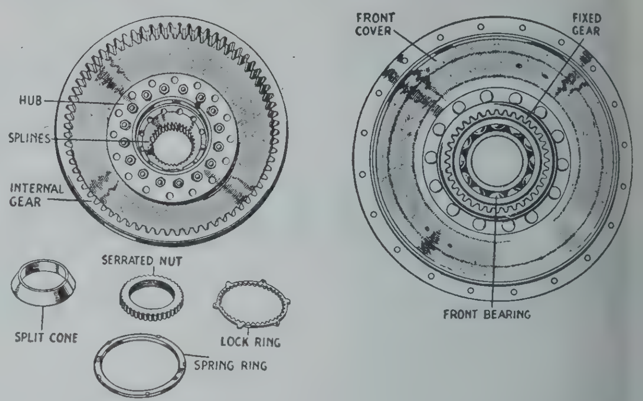
The reduction gear is of the plain epicyclic type with a reduction ratio of 1 to 0.657, giving an airscrew speed at 2,000 crankshaft r.p.m. of 1,314 r.p.m. The details are well shown in the illustrations reproduced.

An internally toothed gear wheel rotates at the same speed as the crankshaft to which it is attached. This internal gear drives satellite gears housed in a portion of the airscrew shaft. These satellite gears revolve in the same direction as the crankshaft and internal gear and in revolving cause their housing to turn in the same direction as the crankshaft, but at a slower speed. Owing to the fact that all gears are turning in the same direction, i.e., anti-clockwise when viewed from the pilot's seat, wear in the gear is negligible.

The internal gear is bolted to the hub, the latter incorporating a gear which drives the timing gears. The combined piece formed by the internal gear and the hub is splined on to the front end of the crankshaft, where it is secured by a split brass cone and an externally serrated nut held by a serrated lock ring which is fixed by a circlip. The outer race for the airscrew and satellite rear roller bearing is held in the hub by a spring rim. The hub passes through the timing case, a distance piece being fitted between the hub gear and the brass bush in the centre of the timing case.



Power curve of the Armstrong Siddeley geared Jaguar engine.



The Jaguar reduction gear. The internal gear and splined hub, and the front cover of the gear case.

The airscrew shaft which runs on a ball bearing in the front cover and a roller bearing in the hub, is machined in one with a housing for the pins on which the five satellite gears revolve. The gears are mounted on roller bearings which run in case-hardened pins supported between two flat rims formed with the airscrew shaft. The threaded end of each pin is located by a key fitting a slot in the rim where it is additionally secured by a castellated nut and split-pin.

The inner race of the sun gear's main roller bearing is driven on to the airscrew shaft, where it remains a fixture. The front ball bearing of the sun gear is always fitted and extracted in one piece, the gear with the outer part of its roller bearing being easily positioned on the shaft and being followed up by an aluminium distance piece and the rear inner race of the front bearing.

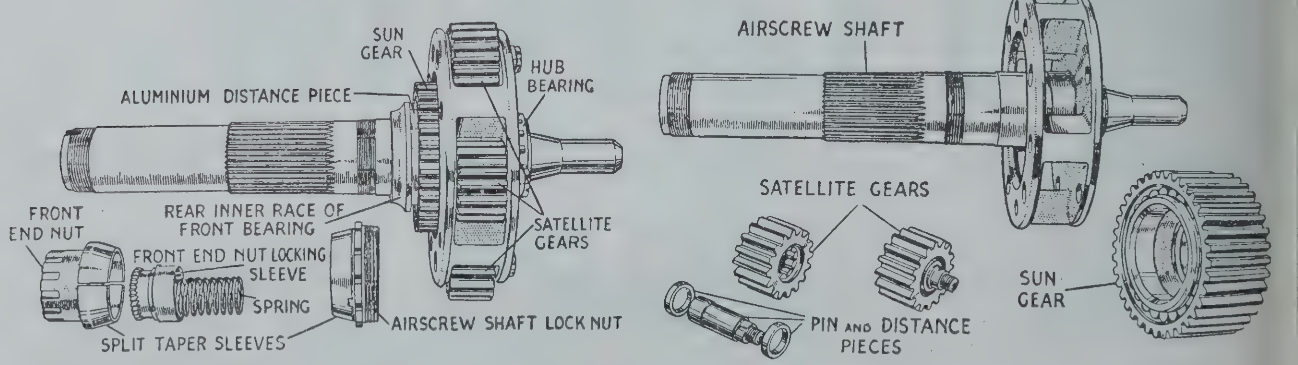
The Front Cover and Fixed Gear.

The front cover accommodates the fixed gear into which the sun gear fits. It also houses the front portion, outer race and balls of the front bearing, this bearing being secured by a cover plate which prevents the outer race from creeping and is positioned by nuts and bolts passing through the cover and cover plate. When these nuts are removed the bolts cannot fall into the gear case because they are located in it by small circlips.

The front cover is secured on the airscrew shaft by the airscrew shaft lock nut. This is followed up by a split taper sleeve which is secured by the airscrew boss. The front end of the hollow airscrew shaft is sealed by an aluminium plug which is pegged in position.

BLACKPOOL IN 1909.

Much interest has been shown in the photographs of the Blackpool Meeting of 1909 which appeared in the last issue of The Aeroplane. These photographs were taken by Mr. Harry Wade, Portrait and Commercial Photographer, The Studio, 2, Moseley Street, Leyland, Lancs., who displayed great foresight in preserving the negatives. Any reader of The Aeroplane who would like to have copies of these photographs can get them from Mr. Wade,—the price varying according to the size of the picture.



The Armstrong Siddeley reduction gear fitted to the Jaguar engine. Details of airscrew shaft, and sun and satellite gears.

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ARCHÆOLOGY FROM THE AIR.

Wessex from the Air. By O. G. S. Crawford, F.S.A., and Alexander Keiller, F.S.A., F.G.S. 264 pages + xii. 50 illustrations. Oxford University Press. Obtainable from The Aeroplane Book Department. 50s. net.

Wessex from the Air is certainly the most beautiful publication which has ever been produced in connection with aerial photography, and Wessex may be proud of having been the subject of such a work.

Mr. Keiller, whose name is more usually associated with the City of Dundee and the production of marmalade, is a young man who is in the happy position of being able to pay for what he wants and is in the still happier position of having an intellect which prompts him to want things which are worth having and doing. He has had to do with flying intermittently since 1909 and during the War was a pilot in the Royal Naval Air Service.

Mr. O. G. S. Crawford, who is an official of the Ordnance Survey, was an observer in the R.F.C. during the War and had the misfortune to be landed on the wrong side of the lines with the result that he had, as the preface of the book says, plenty of leisure in German prison camps to elaborate his schemes for air photography as an aid to archæological exploration and record.

The partnership which has produced this wonderful work began when Mr. Crawford published in *The Observer* an article on the Stonehenge Avenue as disclosed by air photographs. The correspondence which followed led to a meeting at which general principles were arranged. Mr. Keiller then bought an Avro, arranged for its housing, acquired a German camera from the Disposals Board and set out to discover Salisbury Plain from the air. Capt. Gaskell, late R.A.F., acted as pilot. And Mrs. V. M. Keiller took an active part in the general running of the party's activities. The Avro was later replaced by a D.H.9.

With the camera in the air all kinds of things were discovered which would have been absolutely invisible on the ground. Quite clear plan views of camps and villages appear in photographs the location of which can hardly be traced when one goes to look for it afterwards. As the result of excavations following on photographic discovery a large number of most interesting relics have been discovered which illuminate history.

The country covered runs all the way from Winchester down to the western edge of Salisbury Plain and covers most of the Plain from north to south.

Apparently the explorers started by photographing the sites already well known on the ground, and in the course of flying from one to another they came across ground marks indicating other places of archæological interest, and these in turn were photographed and investigated.

The photographs with which the book is illustrated are not only splendid photographs in themselves but they are magnificently reproduced. Perhaps the most beautiful picture of all is that of the famous Ring at Avebury, but the Hambledon photographs come very close to it for beauty. All those who are seriously interested in archæology in England should certainly get hold of a copy of the book.

C. G. G.

BY ERROR.

One regrets that some serious errors appeared in the account of the Blackpool Pageant. The only excuse is the difficulty which existed in getting any information from any official source other than a hard-worked Clerk of the Course.

In referring to the display of flying with slotted wings the statement was made that Sq. Ldr. Noakes was flying a Moth. He was in fact flying an Avro Avian. Unfortunately one accepted the statement of the official programme in which it was clearly stated that Sq. Ldr. Noakes was to fly a Moth in that particular event. And as one's somewhat crippled condition prevented one from leaping at each individual machine as it taxied up to the machine park to make quite sure that the pilot mentioned in the Programme was actually in the appropriate machine, one must accept the responsibility for the mistake.

In the description of the photograph illustrating Miss Winifred Brown winning the Open Handicap, this lady was described as being in a Moth whereas she also was in an Avian (Cirrus) of which she personally is the owner. Of course the Programme was so hopelessly inadequate that it was almost impossible to discover what pilot was flying what machine. And the only surprising thing is that there was so few mistakes. Fortunately this error corrected itself in that issue of The Aeroplane, in spite of misprints, because in the list of winners of heats and finals Miss Brown appears four times as an Avian pilot and once as Mrs. Brown piloting an Avian. All the same one expresses one's deep regrets to our old friends A. V. Roe and Co. Ltd. that such mistakes should happen.

Another error happened in the description of the parachute-jumping. Mr. Ford did the jump with an Irving parachute which one described (doubtfully) to Mr. Leslie Irvin himself. The delayed drop ascribed to Mr. Ford was in fact done by Mr. Tranum with a Russell lobe-parachute, which is handled in this country by the Calthrop Co.

If anybody else finds any further errors to be corrected will he, or she, or they, please notify The Aeroplane accordingly. One is always pleased to put wrongs right. And the person who never makes mistakes never makes anything else.—C. G. G.

THE BLACKPOOL COLLISION.

One who had an opportunity of watching at close quarters the collision between the Parnall Imp and the Moth at the Blackpool Meeting states that though the reasons given in The Aeroplane for the accident sound all right they are spoiled by the fact that the pilot of the Imp was in fact looking over the right-hand side of his machine, as is his habit both when landing and taking off. This habit is shown in the photograph of the Imp which appeared on page 124 of The Aeroplane of July 11.

The observer mentioned argues that in practically no aeroplane is it possible from the pilot's seat to see a machine which is absolutely dead ahead, unless either that machine is very close indeed, or is of abnormal size, or unless the tail of the pilot's machine is well up. The normal practice for any pilot about to take off is to swing the nose of his machine as he taxies out so that he can see at some stage all of the aerodrome ahead. Or alternatively he may lift himself up in his seat until he can see over the nose of his own machine. He does not rely on the inadequate view which he gets in looking along the nose on one side or the other.

When starting in a race a pilot has to watch the starting flag for the last 30 seconds. Therefore he cannot, before opening out his engine, lift himself up in his seat to see over the nose. Neither can he when getting off spare the time to zig-zag after the starting signal has been given. Consequently he omits both these precautions and relies, firstly, on the common sense of other pilots not to place their aircraft during that last 30 seconds, when the racing pilot's attention is concentrated on the starter, so that a collision during the take-off is possible; and, secondly, he relies on the officials of the organising club to make sure that no aircraft are allowed to wander in front of the machines which are starting. He also relies on the officials to give adequate warning to the racing pilot should such a thing happen inadvertently. And unfortunately at Blackpool this simple trust was misplaced.

VIEWS AND REVIEWS

THE WAR IN THE AIR. Volume II.
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C. G. G. in *The Aeroplane* of June 27.

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C. G. G. in *The Aeroplane* of June 20.

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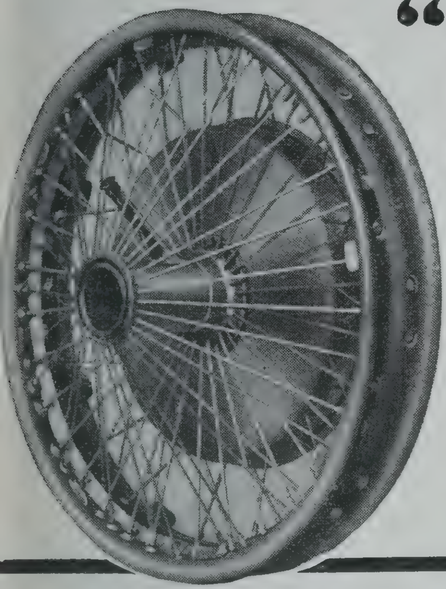

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THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending July 15.

Flying Time 82 hr. 15 min. *Instruction* 29 hr. 35 min. *Soloists* 52 hr. 40 min. *Soloists.*—Miss Wilson, Messrs. P. A. Wills, E. A. Lingard, H. M. Samuelson, W. G. Robson, B. B. Tucker, S. Nesbitt, G. H. Craig, J. H. Saffery, E. E. Stammers, L. Rowson, W. Roche Kelly, C. Campbell, M. L. Bramson, G. N. Larden, R. Sanders Clark, Will Hay, P. W. Hoare, D. H. P. Esler, O. J. Tapper, T. E. Hearne, J. J. Hofer, J. C. V. K. Watson. *Instruction.*—Miss Wilson, Miss V. M. Cholmondeley, Miss Johnson, Miss Hicks, Mrs. Thatcher, Messrs. E. H. Thierry, J. W. P. Chalmers, A. O. Wigzell, H. W. Marlow, W. G. Robson, R. K. Korathkar, R. M. Doidge, R. S. Rattray, A. C. Thomas, E. Davis, C. Campbell, J. R. Rymill, R. Maurice, C. Reilly, J. Harrison, H. T. Molyneux, D. G. Prentice, T. E. Hearne, P. A. Wills, C. A. Bonniksen, G. A. Stedall, A. Hill Reid, C. R. E. Fenwick, P. W. Hoare, J. Bickley, J. C. V. K. Watson, L. Rowson, I. D. Lloyd, B. Carey, G. Lyon, D. H. M. Symon.

Subscriptions.—Members are reminded that their subscriptions fell due on July 1 and should be sent to Secretary, 3, Clifford Street, W.1.

New Machine.—The Club will take delivery of its new D.H. Moth (Mark II Cirrus) this week.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending July 15.

Flying Time 48 hr. 5 min. *Instruction* 8 hr. 10 min. *Soloists* 5 min. *"A" Pilots* 26 hr. 15 min. *Passengers* 11 hr. 40 min. *Tests* 30 min. *Exhibition* 1 hr. 25 min. *Instruction.—With Mr. J. D. Parkinson*—Miss Slade, Mrs. Robson, Mrs. Kish, Miss Klyver, Messrs. Carr, Alton, De Pledge, Runciman, Lawson, Lawrence, Walker, Temple, Horn. *Soloist.*—Miss Slade. *"A" Pilots.*—Dr. Dixon, Messrs. Turnbull, Todd, H. Ellis, Heppell, Wilson, De Pledge, Runciman, R. N. Thompson, A. H. Bell, Irving, C. Thompson, Horn, Percy, Phillips, Miss C. R. Leathart, Mrs. Heslop.

We are pleased to report that Miss Slade was successfully launched this week. Her performance was excellent, and shows promise of a good pilot.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Report for week ending July 14.

Flying Time 42 hr. 49 min. *Instruction.—With Flt. Lt. T. Rose, D.F.C., and Mr. W. H. Sutcliffe*—30. *Soloists.*—20. *Passengers.*—16.

On Thursday Mr. Cobb successfully made his first solo flight.

Over 20 machines landed at the aerodrome on Sunday afternoon on their return from Blackpool.

The Club will be represented in the King's Cup Race by Mr. R. G. Cazalet on his Widgeon.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, The Aerodrome, Hamble.]

Report for week ending July 13.

Flying Time 72 hr. 50 min. *Instruction* 33 hr. 35 min. *"A" Pilots* 23 hr. 55 min. *Soloists* 9 hr. 40 min. *Passengers* 3 hr. 5 min. *Tests* 2 hr. 35 min. *Instruction.—With Flt. Lt. Swoffer and Mr. W. H. Dudley*—46. *"A" Pilots.*—12. *Soloists.*—14. *Passengers.*—21.

The weather forecaster did not like our remarks last week, and has shown us what he can do when he likes. Consequently we have broken another record with a weekly total of 72 hr. 50 min.

Owing to the increased membership, and the growing success of the Bournemouth movement, we have secured the services of an Assistant Instructor, Mr. W. H. Dudley. He joined the R.N.A.S. in 1917, and graduated as a pilot at No. 4 F.T.S. in Egypt. In 1924 he went through the course at the Central Flying School, Upavon. He then instructed at No. 5 F.T.S. at Sealand, and was afterwards posted to No. 42 Squadron at Tangmere, where he flew Gamecocks and Siskins. Our Chief Instructor, Flt. Lt. Swoffer, is now able to see what an aeroplane looks like in the sky, instead of being in one all day.

The Bournemouth movement is going very strong, and the Chief Instructor gave over seven hours' dual there last Wednesday. Unfortunately, the racecourse has been closed down, and so we were unable to use it. The members have secured another field which, when the fences are removed, will make an excellent aerodrome.

Mr. H. King successfully completed his flying tests for his "A" Licence, bringing our total of "A" Licensed Members up to 39. Mr. Fawkes decided it was time he did the same, as he was one of our early members. Having completed his tests, he will not mind waiting as long for his licence, which we expect he will have to do.

We hope to have our third machine out again this week, after its accident with Mr. Watson. The Ground Engineer is to be complimented on his work during the past few weeks.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending July 15.

Flying Time 32 hr. 40 min. *Instruction.—With Mr. Young*—Messrs. C. Harvey, T. Image, C. Ransome, G. Wharton, C. Bethell, A. Richardson, W. S. Coates, C. Meadows, A. J. Finch. *Soloists.*—Messrs. H. P. Clarke, T. Image, A. Marshall, F. Gough, E. Varden Smith, A. Cooper, R. Moore, N. Brett, R. Potter, W. Cubitt, W. Ramsay, G. Surtees. *Passengers.*—82.

On Saturday, the members of the Norfolk County Council, including their Chairman, Mr. Russell Colman, visited the Club, where tea was served and joy-rides given over Norwich. We were pleased to have with us on this occasion Mr. Henry M. Holmes, who has honoured the Club by becoming its first President. Mr. Holmes will be recalled as having been extremely generous to the Club. In a short speech he remarked that he might be found particularly useful in one direction anyway, as he was very interested in the Norfolk and Norwich Hospital . . . . Capt. Rice, our Chairman, received the guests of what proved to be a very pleasant afternoon. The weather for this week has been kind and has enabled us to get in a good flying return. We hope it continues.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Maj. P. L. Holmes, D.S.C., The Aerodrome, Hadleigh, Suffolk.]

Report for week ending July 14

Flying Time 29 hr. 20 min. *Instruction* 9 hr. 20 min. *"A" and "B" Pilots* 11 hr. 15 min. *Soloists (under instruction)* 2 hr. 40 min. *Tests* 25 min. *Instruction.—With Mr. Lowdell*—Mrs. Young, Miss Rhodes, Dr. Mildred Yate, Miss W. Edwards, Messrs. Goodwin, B. F. Marriage, Hanson, Wedd, Croydon, Plt. Off. Creasey. *Soloists (under instruction).*—Miss S. Edwards, Messrs. Billinton, Hanson and Plt. Off. Creasey. *"A" and "B" Pilots.*—Mr. C. N. Prentice, Dr. J. C. Sleigh, Messrs. Schofield, Brown, Verney, and Flg. Off. Birt. *Passengers.—With Mr. Lowdell*—26. *With Mr. Prentice*—21.

Mr. H. Billington and Mr. C. Hanson both completed their tests for their "A" licence in good style during the week.

The weather has been perfect and in addition to a very busy week at Hadleigh we joined the Norfolk and Norwich Aero Club in a crusade to create "airmindedness" at Thetford on Thursday. Whether we achieved our object or not the members had great fun.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. F. G. Crawford, Filton Aerodrome, Bristol.]

Report for week ending July 14.

Flying Time 15 hr. 20 min. *Flying Time for previous week* 15 hr. 40 min. *Instruction.—With Mr. Bartlett*—Messrs. Godfrey, Lysaght, Hughes. *With Mr. Tratman*—Messrs. Hughes, Keeling, Heaven, Jellicoe, Greenhill, Laws, Singh, Peters, Davis, Allinson. *Soloists.*—Mr. Downes-Shaw, Godfrey, Jopp, Bathurst, Brewer, Holmes.

We are sorry to say that Mr. E. B. W. Bartlett, our instructor, was taken ill with appendicitis, and was operated on last Wednesday. He is doing well, but we shall be without his services for some weeks. We are endeavouring to obtain a deputy instructor during his absence, and in the meanwhile Mr. J. E. Tratman is doing great work in devoting much of his spare time to instructing. The weather being ideal makes it all the more unfortunate.

The Cinque Ports Flying Club.

[Sec.: R. Dallas Brett, 114, High Street, Hythe.]

Report for week ending July 14.

Owing to the unfortunate accident on July 7, there was no flying during the week, which was occupied in agreeing with the insurance Company for delivery of another machine to replace G-EBWC. The Club arranged to take over the Moth G-EBSS *Jeunesse*, formerly the property of the Vicomte de Sibour. This was fetched from Stag Lane by Mr. Clarke on Sunday. Flying will now proceed as usual.

This Club is working the Lympne control for the King's Cup Race in conjunction with the Royal Aero Club. The Competitors will stay half an hour at Lympne, so that the Public will get an opportunity of inspecting them. Joy-rides will be available at a minimum charge of 10s.

The proprietors of two of the most prominent local newspapers have offered a cup valued £10 to be known as *The Folkestone Herald and Kent Evening Echo Cup* for the private owner flying his or her own aeroplane, who makes fastest time between the controls at Southampton and Lympne in the King's Cup Race. This generous award will add much to the local interest in the King's Cup Race.

The De Havilland School.

Report for week ending July 15

Flying Time 279 hr. 15 min. *Instruction.—Dual*, 121 hr.; *Solo*, 131 hr. *Other Flying* 27 hr. 15 min.

This week has seen the school working at high pressure and all previous records have been easily surpassed with the huge total of 279 hr. 15 min. flying for one week. Truly a blazing example of the ever-increasing popularity of Civil Aviation, coupled with Light Aeroplanes.

Besides a record number of hours being flown, seven pupils did excellent first solos, one pupil passed tests for "A" licence and another tests for "B" licence. This constitutes yet another record for a single aviation school.

Nine new Moths were tested and the famous Tiger-Moth was again rocketed into the atmosphere by Capt. Broad after its long period of inactivity.

Notable visitors this week were our old friends, Sir Alan and Lady Cobham, looking very fit after their successful African tour. Sir Alan flew a School Moth with obvious enjoyment.

On Saturday last the School was closed for the firm's Sports Meeting, but Instructors and Moths would not then be denied, for one of the most popular event in the programme was a flying Obstacle Race, admirably planned by A. S. White, Chief Instructor.

FLYING SCHOOLS.

The Henderson Flying School.

Report for week ending July 15.

Flying Time 48 hr. 10 min. *Instruction.—With Col. Henderson*—Messrs. Du Cane, Miss Fernie. *With Mr. Davis*—Messrs. Swan, Hill, Presland, Dr. Wall, Mayos, Murphy, De Cane, Dr. Taylor, Daniels, Oliver, Crabtree, Davies, Misses Wellby, Chapman, Fernie. *With Mr. Davenport*—Miss Wellby, Messrs. Maddocks, Du Cane, Davies, Egston, Bingham.

Mr. Swan made an exceptionally good first solo on the 12th.

The total number of passengers carried during the week numbered 320.

Mr. Crabtree and Oliver in doing their night-flying tests at Croydon, have now completed all tests for their "B" Licence. We have now turned out five "B" Licence pilots since Jan. 1.

A LIGHT SEAPLANE RECORD.

On July 10, at Rochester, the Short Mussel two-seater light seaplane (Cirrus Mk. II engine) piloted by Lady Heath and Miss S. O'Brien, as a passenger, established a height record in the new F.A.I. class for light two-seater seaplanes.

After ninety minutes a height of 13,400 ft. was shown by the barograph, which then—it is reported—ceased to register.

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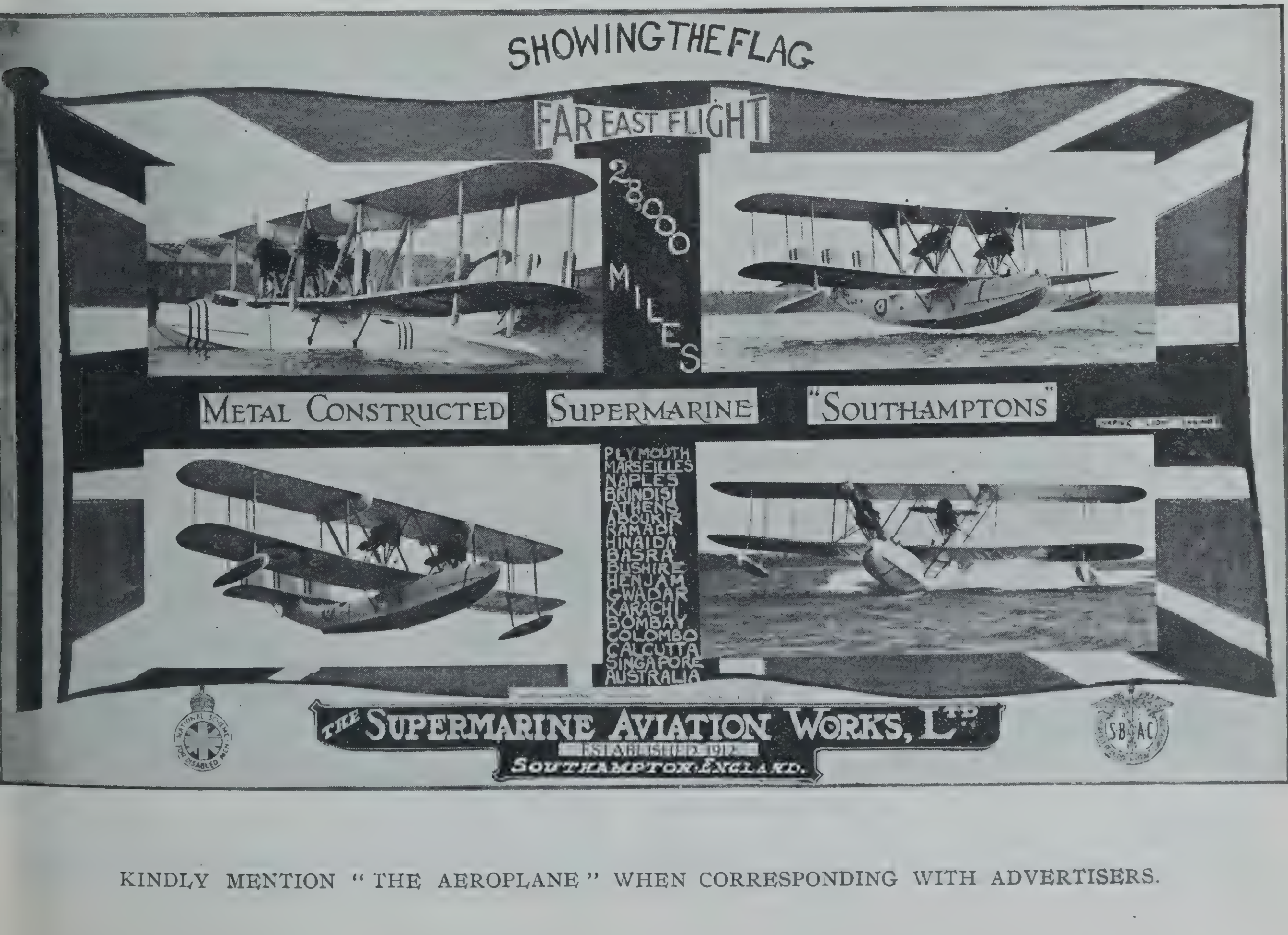

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 17; Monday, 37; Tuesday, 38; Wednesday, 35, Thursday, 40; Friday, 36; Saturday, 36.

Imperial Airways Ltd.:
London—Paris—Zurich: London—Ostend—Brussels—Cologne and return: Machines 105, passengers 867, freight 30 tons.

Air Union:
Paris—London and return: Machines 53, passengers 363, freight 13½ tons.

K.L.M.:
Amsterdam—Rotterdam—London and return: Machines 35, passengers 272, freight 6 tons.

Sabena:
Brussels—London and return: Machines 17, passengers 98, freight 2 tons.

Deutsche Lufthansa AG.:
Amsterdam—London and return: Machines 24, passengers 79, freight 3 tons.

Private:
Machines 5, passengers 9.

Total number of trips by British Machines, 108, carrying 873 passengers. Foreign Machines, 131, carrying 815 passengers.

COMPARATIVE FIGURES.

Week ending July 14:
Machines, 239; Passengers, 1,688; Crews, 460; Total personnel, 2,148.
Corresponding week, 1927:
Machines, 167; Passengers, 1,101; Crews, 320; Total personnel, 1,421.
Corresponding week, 1926:
Machines, 169; Passengers, 1,199; Crews, 218; Total personnel, 1,427.
Corresponding week, 1925:
Machines, 165; Passengers, 888; Crews, 218; Total personnel, 1,106.
Corresponding week, 1924:
Machines, 199; Passengers, 991; Crews, 450; Total personnel, 1,241.
Corresponding week, 1923:
Machines, 121; Passengers, 604; Crews, 194; Total personnel, 798.
Corresponding week, 1922:
Machines, 152; Passengers, 411; Crews, 256; Total personnel, 667.
Corresponding week, 1921:
Machines, 115; Passengers, 430; Crews, 137; Total personnel, 567.
Corresponding week, 1920:
Machines, 106; Passengers, 219; Crews, 137; Total personnel, 356.

Croydon Notes.

For the first time in the history of Civil Aviation over 2,000 persons crossed the Channel by air during the past week. During the same week a total of just on 55 tons of goods were carried between England and the Continent.

The latest addition to the list of private owners of the larger class of aeroplanes is the Hon. F. E. Guest, M.P., who was Under-Secretary of State for Air in the last Coalition Government, and now commands No. 600 City of London (Bombing) Squadron, Auxiliary Air Force. He has acquired one of the Junkers F13 monoplanes with a 230 h.p. Junkers L2 engine.

This machine bears the registration G-EBVZ, and arrived at Croydon during the week, where it is to remain in the care of Imperial Airways, and will probably be flown by Mr. Drew.

Though the machine has been duly registered, there seems to have been some minor hitch about validating its German Certificate of Airworthiness—presumably because Germany has not as yet joined the I.C.A.N.

The acquisition by an ex-Under-Secretary of State for Air of his own private aeroplane is undoubtedly an event to be welcomed. But there will be somewhat mixed feelings on the subject of his purchase of a non-British machine—but where is there a comfortable, well tried British machine capable of carrying four or five passengers which can be bought over the counter at a reasonable price?

Air Union's loads now regularly include large consignments of *fraises du bois,* or French wild strawberries, consigned mainly it is understood to the Savoy Hotel.

It is difficult to understand why this delightful fruit has not yet reached the English market in larger quantities. It is not expensive to buy in France, and the 3d. or so per lb. charged for air transport would not prevent its sale in the English market, where all fruit is outrageously dear.

The absence of any Croydon Notes for the past two weeks is the result of their habitual writer's absence on the Continent, primarily for the purpose of visiting the Paris Show. This absence was made the occasion for a minor flying tour in the course of which Le Bourget, Haren (Brussels), Waalhaven (Rotterdam), and Schiphol (Amsterdam) were visited.

Until the opening of the new buildings at Croydon any and all of these aerodromes might have been used as a standard by which to deride the higgledy-piggledy condition of our own chief airport. Visiting them to-day after having become used to the new buildings one is almost tempted to regard them with contumely. Actually they are vastly better arranged and laid out than our original Croydon, and in some ways at least they are as well provided with the necessary services for passenger comfort as is Croydon.

One point to which the proprietors of the hotel and buffet at Croydon might attend is the matter of change for foreign moneys. At any of the Continental aerodromes where the passing traveller may call for refreshment any coinage seems to be accepted in payment as a matter of course.

On returning to Croydon with nothing but a £5 note and some Dutch florins, it was necessary to get the K.L.M. office to turn the Dutch coins into British ones before one could pay for a cup of tea.

There seems at present to be no proper exchange office at Croydon, and this is a want that certainly should be supplied.

The Vulcan crash on Friday, coming after so long a spell of complete freedom from serious accident to any British commercial machine, was a most regrettable affair. Everyone at the aerodrome is particularly sorry for the two poor girls who came to so horrible an end, and the loss of Dan Hall, of the A.I.D., is universally felt.

There is also a great deal of sympathy with Mr. Spafford for his ill-fortune in being involved in so ghastly an affair. Though badly knocked about, and probably barely conscious, he made every effort to rescue some of the occupants of the machine, and apparently had himself to be dragged out of the flames by an onlooker.

The Croydon Accident.

Shortly after mid-day on Friday, July 13, G-EBLB, a Vickers Vulcan belonging to Imperial Airways Ltd., crashed at Little Woodcote, about three miles S.W. of Croydon Aerodrome, and caught fire. Four passengers in the cabin, who were stunned in the crash, were unable to escape.

The pilot, Mr. John Spafford, was thrown clear and escaped with minor injuries, and Mr. A. G. Tucker, who was seated at the back of the cabin, was pulled out of the door by a spectator, practically unhurt.

The four passengers killed were Miss Phyllis Smith and Miss E. J. Benjafield, both typists employed by Imperial Airways, Mr. A. Hall, one of the A.I.D. Inspectors at Croydon Aerodrome, and Mr. W. E. Halstead, one of the motor-car drivers employed by Thos. Tillings Ltd., on the service run by them for Imperial Airways between London and the Aerodrome.

Mr. Spafford, who has been flying on Imperial Airways regular services for the past three months, is an ex-sergeant pilot of the R.A.F., and was regarded as one of the most careful and competent of air-line pilots. Mr. Tucker is employed as a store-keeper by Imperial Airways.

The Vulcan's engine had just been changed in the normal course of routine, and the machine was making the usual test flight before returning to service. The five passengers were all of them merely taking the opportunity thus presented of making what was for most of them their first flight.

The machine left the ground a couple of minutes or so after the 12.00 o'clock Argosy for Paris. Mr. Spafford seemed to keep it on the ground for a very considerable distance, but nevertheless it took off tail-down, and never, while it remained in sight, did it get into a normal flying attitude, and height was gained only slowly. A wide turn to the southwards was made successfully at a height that looked like about 150 ft. a mile or so west of the aerodrome, and the machine, still tail down, flew south for a minute or so, gaining height slowly.

It then turned towards the aerodrome, and at once lost height in a disturbing way, sinking to below the apparent level with the top of the line of trees west of Plough Lane, but somewhat south of them. The pilot then seemed to pick the machine up, turned north, and then disappeared behind the trees.

A minute or two after this disappearance a column of black smoke rose above the tree-tops.

Until the narrative of the survivors is available, precise details of what happened cannot be given, but it appears

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to be established that Mr. Spafford found his radiator boiling within a minute or two of leaving the ground, that he throttled down his engine after turning for the aerodrome, but lost height so alarmingly at once that he was compelled to open up again. Even so he was apparently unable to remain in the air, for the neighbourhood of the crash is definitely not one in which any pilot would attempt to land.

According to the accounts of spectators the engine stopped and the machine dived just before the crash, and the position and state of the wreckage was entirely consistent with this statement.

The Purley fire-brigade arrived at the scene of the accident some time before anybody from the aerodrome, and did everything possible with the aid of chemical fire extinguishers to subdue the flames and to rescue the inmates of the machine, unfortunately without success.

Air Mail Insurance.

The Postmaster-General announces that insured letters, boxes and parcels for Holland, and insured letters and boxes for Switzerland may now be accepted for transmission by air on the same conditions as for similar articles sent by ordinary routes. (There is already an insured air parcel service with Switzerland.) The usual air fees are of course payable in addition to postage and insurance fees.

Air Union's New London Offices.

The new London offices of the Air Union, at 52, Haymarket, are now open. In order to avoid any confusion on the part of passengers who booked their seats at the old office, 32, Haymarket, this latter will remain open till the end of July. Passenger cars to and from Croydon will leave and arrive at 52, Haymarket.

A Service to Biarritz.

As from July 21, Air Union will run a weekly service between Croydon and Biarritz. The outward trip on Saturday leaves 52, Haymarket, at 08.40 hours, Croydon at 09.30 hours, and reaches Biarritz at 18.30 hours.

The return journey on Monday leaves Biarritz at 06.30 hours, reaches Croydon at 14.15, and 52, Haymarket, at 14.50 hours.

The fare is £12 18s. London—Biarritz, and £14 10s. Biarritz—London, or £27 8s. return.

"The Daily Mail's" Own Aeroplane.

On July 11, *The Daily Mail* announced that it had ordered from the de Havilland Aircraft Co. a machine of the D.H.61, or Canberra, type, to be used exclusively for the purpose of news-gathering.

The normal D.H.61 is a single-engined passenger carrier capable of seating six passengers in marked, and eight in comparative, comfort. With a Bristol Jupiter VI it has a top speed of 130 m.p.h. or so.

The Daily Mail machine is being fitted with a dark-room, so that photographs may be developed in it while flying, and thus save more time than could be saved by air transport alone.

Aircraft Workshops at Highgate School.

Sir Samuel Hoare, Secretary of State for Air, on July 14 inaugurated what is described by the press as "London's first roof air station." This is in fact an aeronautical training workshop installed on the roof af the new Science buildings at Highgate School.

The establishment consists of a shed, an Avro and a Snipe aeroplane with engines, and an Armstrong-Siddeley Jaguar and a Napier Lion engine, complete with workshop equipment and the like.

It will be used to give practical instruction in aircraft construction and maintenance to pupils at the school who may meditate on taking up an aeronautical career, and the provision of such facilities is a tribute to the foresight of the Head Master, Dr. J. A. H. Johnston, who is the originator of this enterprise.

Technical Interest.

On June 27 a party of some 200 members of the Institution of Mechanical Engineers, which Institution was holding its Summer Meeting at Southampton, were the guests of the Supermarine Aviation Warks, Ltd., at their works at Woolston, Hythe. At Woolston the engineers were able to see the manufacture of component parts of the famous Southampton flying-boats and thereafter they were taken in motor-launches across to the firm's big erecting shops at Hythe.

Next day the party visited the R.A.F. Station at Calshot where they saw various Southampton boats being operated by the R.A.F.

Visits of this sort are highly to be commended, as demonstrating to engineers of the orthodox type the advances which have been made in aeronautical engineering. Quite a number of mechanical and civil engineers are still under the impression that aeroplane construction is very much a rule-of-thumb hit-or-miss kind of business, and anything which can be done by the Aircraft Industry to remove this impression is very much for the good of Aviation.

BOOKS TO POSSESS

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A.B.C. OF FLIGHT

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Women and the Air League.

Lady Heath, formerly Mrs. Eliott Lynn, writes :—

There is no Women's Section of the Air League—there only exists a Ladies' Sub-Committee, of which I have the great honour to be Chairman. This sub-Committee is not offering any Scholarships, nor has it got anything to say to them. An aviator recently made £700 by a trans-Continental flight and has personally given this sum for the creation of such a Scholarship Fund. The Fund is being administered by representatives of the Air Ministry, the Air League and the Royal Aero Club.

It would be kind of you to correct the impression conveyed in your last issue, as the Ladies' Committee, an entirely new body, does not wish to take upon itself anything except the recruiting of members for the Air League, and any assistance it can give to the parent body.

A Commercial Marriage.

From now onwards the industrial rubber products of Chas. Macintosh and Co. Ltd., the firm whose founder added the word "macintosh" to the dictionary, are to be marketed under the name "Macinlop," so signifying the fusion of interests between the older organisation and the Dunlop Rubber Co. Ltd. The tyre and flag crest used by Dunlop will appear on the business paper of Macinlop Ltd., alongside the famous "Cock Brand" trade mark of Chas. Macintosh and Co. Ltd.

The fact that the name "macintosh" has now passed into the general currency of the English tongue precludes its registered use in respect of certain commodities, and the new name "Macinlop" will therefore cover industrial rubber goods, such as belting, hose, general mechanical goods, rubber-covered rollers, ebonite, industrial footwear, rubber tiling and flooring, fabrics and pneumatic upholstery for motor and furnishing trades, surgical goods and a great variety of rubber goods for industrial and other purposes.

New Companies.

British Russell Parachute Company Ltd.—Private Co. Registered July 7. Capital, £15,000 in £1 shares. Objects: To acquire from the Russell Parachute Co. Ltd., of Wilmington, Delaware, San Diego, California, U.S.A., the benefit of certain existing inventions relating to parachutes and other aircraft accessories, and to carry on the business of manufacturers of and dealers in parachutes, aircraft and aircraft accessories, etc. The first directors are: C. P. Williams, M.P., Bella Vista, Bwlchgwyn, Wrexham. M. Senst, 97, Foxley Lane, Purley, Surrey. T. H. Roberts, Clevedon House, 2, Somerset Road, New Barnet, Herts. Qualification: 100 shares. Secretary: T. H. Roberts. Solicitors: White, Davison and Co., 61/2, Chancery Lane, W.C.2. Registered office: 423 and 423A, Edgware Road, Paddington, W.2.

Airship Development Company Ltd.—Private company. Registered July 14. Capital, £1,000 in 950 7½ per cent. participating preference shares of £1 each and 1,000 ordinary shares of 1s. each. Objects: To carry on the business of aeronautical engineers and consultants, manufacturers of and dealers in airships, aeroplanes, hydroplanes, seaplanes, balloons, etc. The directors are: A. Weir-MacColl, 82, Seymour Street, W.C.2. M. W. Wood, Thornfield, Rough Common, nr. Canterbury, Kent. R. H. Schlotel, 32, Balaclava Road, Surbiton, Surrey. Secretary: R. H. Schlotel. Registered office: 39, Victoria Street, S.W.

Mortgages and Charges.

Cellon (Richmond) Ltd.—Particulars filed of £40,000 debentures authorised June 27, 1928, charged to the company's undertaking and property, present and future, including uncalled capital, the whole amount being now issued.

Satisfactions.

William Beardmore and Company Ltd.—Satisfaction in full on June 22, of charge dated May 22, 1928, securing £11,000 and further advances not exceeding therewith £125,000.

Triplex Safety Glass Company Ltd.—Satisfaction in full on June 26, 1928, of debenture dated Mar. 23, 1926, securing £40,000.

PERSONAL NOTICES.

Forthcoming Marriage.

EMBRY—ELLIOT.—A marriage has been arranged, and will take place very quietly in Paris early in August, between Flt. Lt. B. E. Embry, A.F.C., R.A.F., younger son of the Rev. J. Embry, and Hope, younger daughter of the late Capt. C. S. Elliot, R.N., and Mrs. Elliot, 24, Rue Constantinople, Paris.

Marriages.

HYDE—BIGNELL.—On July 14, Flt. Lt. W. V. Hyde, R.A.F., to Dorothy Evelyn, elder daughter of Mr. and Mrs. E. A. Bignell, late Wallington, Surrey.

PHILLIPS—CROFT.—On July 12, Flg. Off. John Sener Phillips, R.A.F., elder son of the Rev. P. R. Phillips and Mrs. Phillips, of Hildersham Rectory, Cambridge, to Nancy, third daughter of the late Sir Archer Croft, Bt., of Croft Castle, Herefordshire.

Births.

HICHENS.—On July 4, at Quetta, to Xenia, wife of Flt. Lt. Fitzgerald Hichens, R.A.F.—a son.

LEDER.—On June 29, at Wimbledon Park, to Marjorie, the wife of Flt. Lt. L. de L. Leder, R.A.F.—a son.

MARTIN.—On July 11, at Cloncurry Cottage, Grange Road, Felixstowe, to Irene, wife of Flt. Lt. L. Martin, R.A.F.—a daughter.

SAUNDERS.—On July 10, at Lodge Hollow, Hoddesdon, to Phyllis (*née* Mabbett), wife of Flt. Lt. H. W. L. Saunders, R.A.F.—a son.

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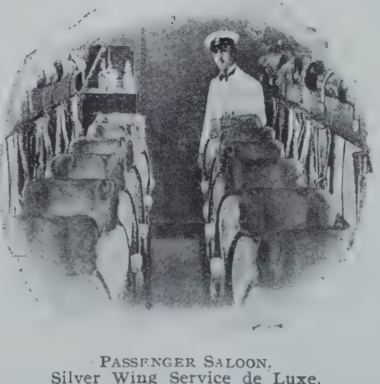

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INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXXV. No. 4. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"THE RACE IS NOT TO THE SWIFT . . . . .
TIME AND CHANCE HAPPENETH TO THEM ALL."—(Eccles. IX, xi.)

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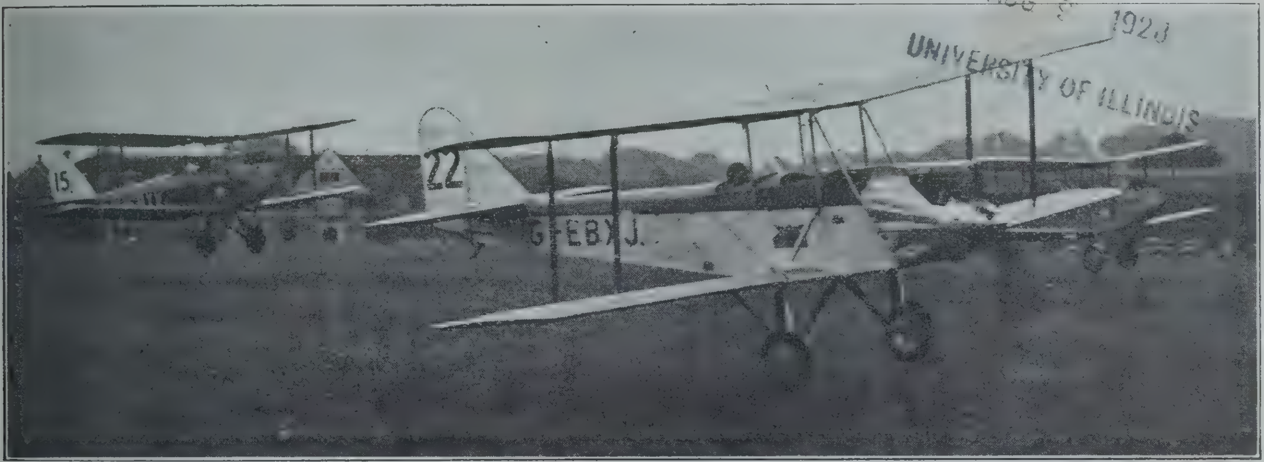

(" Aeroplane " photograph.)

GETTING AWAY:—Left to right.—Capt. Geoffrey de Havilland on Mr. Alan Butler's Moth (Cirrus II) Mr. Bernard Martin on an Avian (Cirrus II), and Wing Cdr. Sydney Smith on Major Nathan's slotted Moth (Cirrus II).

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ON THE KING'S CUP RACE.

Another King's Cup Race has come and gone. Considered a race it was if anything more interesting than any evious race. Certainly from the point of view of making e people of this country airminded it has been of the ghest value.

When His Majesty the King was graciously pleased to esent this Cup he expressed his wish that it should be the ze for a race which would increase public interest in iation. For that reason the race has been held over a urse running as much as possible round England.

This year the course was better chosen than ever, for the ious controls were on the actual aerodromes of the various ght Aeroplane Clubs. And as these Clubs have done an mense amount of work in the course of the last two years stir up local interest in aviation the result was that there re quite large crowds at nearly all the controls. Moreer, as the Club's have each and all had experience, some them rather bitter experience, of organising meetings of eir own, the arrangements at the controls were on the ole admirably worked.

The performances of the machines were really excellent. ore machines finished than have ever started in previous ces. That 23 machines should have finished out of 36 rters is the best possible evidence of the reliability of odern aeroplanes and aero-engines. Certainly nothing like ch a percentage finished in the 200 mile light car race at ooklands.

Those aero-engines were going practically full bore for oo miles with a number of intermediate stops, which ps are far more likely to upset an engine than would eping it going the whole time, because of the distortion of lves and valve-seats when cooling off at the stopping ces. Moreover, of the 13 machines which did not comete the course several were the victims of accidents other an engine failure, as will be discovered in the account of the race. One or two were forced to land through shortage of petrol or other causes, and were damaged in landing or in trying to get away again, so comparatively few of those which did not arrive were put out by definite failure of their engines.

The whole race may be taken as a triumph for British aero-engine designers and makers as well as for the aeroplane constructors. The speeds put up by the big machines on the short handicap marks show that we are distinctly progressing in the production of fast aeroplanes. And that one of the fast machines should have worked its way up into second place proves the excellence of the handicapping.

On the whole the race was a big score for the light aeroplanes which formed the bulk of the entrants. The weather was good throughout the race and that naturally was all in favour of the small machines. But apart from that the high speeds put up by all the light aeroplanes which finished in the first bunch show that with a very little more cleaning up, and a little more additional power, our British light aeroplanes will be able to hold their own as cruising and touring machines with aircraft of very much higher power.

The Winner.

Mr. Hope's win was thoroughly well deserved and was very popular. He is a real hard worker, and puts in an immense amount of labour in Air Taxis Ltd. Also he is a thoroughly reliable pilot upon whom his clients can always depend to carry out his contracts. And there is always satisfaction in seeing a man win a big event who has really deserved it.

One interesting thing about Mr. Hope's win is that his wind-shield has now won three King's Cups. It was on the Moth with which Mr. Broad won two years ago, and when that machine was crashed Mr. Hope borrowed it for the Moth on which he himself won last year. And this year

LAND(ING) OF HOPE AND GLORY.—Mr. Lawrence Hope being chaired in after his second landing at Brooklands. Mr. Will Hay (w't'out 'at) on the left, and Mr. Mundy (in hat) on right. —(*"Aeroplane" photograph.*)

he transferred it to the winning machine, a D.H. Moth G with a Gipsy engine, which proved emphatically the steady improvement of the De Havilland designs. It looks as if there may be something in "joss" after all.

THE SECOND.

Mr. Uwins' race for second place on the big Bristol was a very fine effort. The machine is particularly interesting because it is Captain Frank Barnwell's latest design for a two-seat fighter unaided or unhampered by Air Ministry experts. The engine is an absolutely standard Jupiter VI running at 1,800 r.p.m. and developing 495 b.h.p., so the speed of the machine was not due to abnormal horse power or boosting the engine. The Bristol people hoped that the speed was somewhere in the neighbourhood of 160 m.p.h. Actually on the second half of the course from Glasgow with and against the wind the machine averaged 160½ m.p.h. and if Mr. Uwins had not been misled by his compass on the first stretch of the course to Norwich on the Friday he would, on figures, have won the race fairly comfortably. The performance is particularly interesting because it shows that if a radial engine is decently cowled into a big machine it can put up quite a good speed.

Mr. Uwins himself is one of our finest and most trustworthy pilots. He has never won a big event but he has always been in the front rank. And one hopes to see him some day pull off a classic race.

THE THIRD.

Miss Spooner's performance in getting into third place was immensely popular. She was flying her own aged Moth with a Cirrus I engine. Certainly the machine had been streamlined up a bit and probably the engine had been given rather careful attention. But even so it was an extraordinarily fine show.

Everybody would have been delighted if Miss Spooner had won, for she is such an absolute sportsman in everything she does, and besides is a remarkably fine pilot. Her flight to Venice at the time of the Schneider Trophy contest and her cleverness in putting her machine down in the middle of a street in Genoa when her engine failed, proved that she was a thoroughly competent pilot. And her performance now in the King's Cup Race confirms the fact. Her pluck is shown by the fact that she flew the race with a wounded foot, having trodden on a rusty nail the day before the start, with the result that she was limping badly whenever she got out of the machine. After the finish she said her foot was much better because she had been sitting down for two days.

Her sportsmanship is shown by her remark, when somebody said what a pity it was that she had not won, that three times during the race she had gone for an aerial tour through losing her course, and so did not deserve to win. That is the proper spirit for air racing, and, added to the fact that Miss Spooner does not advertise herself and is distinctly inclined to avoid the front end of a camera, it explains the respect and admiration with which she is regarded by those who take air racing seriously.

However, although Miss Spooner did not win the King's Cup she has the satisfaction of having won the very handsome Trophy presented by Mr. J. D. Siddeley for the first light aeroplane piloted by Club pilot to complete the King's Cup course.

Altogether the race must be put down as quite one of the outstanding successes in the history of British Aviation. The death of Mr. Warwick is wholly lamentable, but fatal accidents happen in all sports, even at golf and lawn tennis, and we can only be thankful that so few deaths have happened in flying lately. (A note on Mr. Warwick's remarkable career will be found in the Personal Notes at the end of this paper.)

One can only hope that next year's race may be an even greater success, that there will be still more entries and a still greater freedom from accidents.—C. G. G.

THE EVENING BEFORE THE RACE.

(As observed by Geoffrey Dorman.)

One of the rules for the race stated "Competitors must be at Hendon aerodrome by 4 p.m. on the 19th. Any competitor who has not arrived by 4 p.m. *may* be disqualified at the discretion of the Committee." Somehow or another this annual rule always reminds one of the screamingly funny skit on *Alice in Wonderland* called *Alice in Motorland* written many years ago by Mr. Horace Wyatt. After twenty rules set out for a motor race comes rule twenty-one, which says "Competitors may observe these rules or not as they think fit and may at any time during the course of the race invent any other rules they like."

The result of the said rule in the King's Cup Race is that practically no machines arrive at the aerodrome until half an hour or so before zero hour. Then they start to trickle in until there is about five minutes to go. Then they simply pour out of the sky.

After 4 p.m. there are always a few non-arrivals who are delayed. When these do finally come they are never disqualified. However the reason for the rule is to get the bulk of the competitors measured up before dark and so it serves its purpose. And it would really be unnecessary to disqualify people for unavoidable lateness.

At about 3.30 p.m. about half a dozen competitors out of the 38 entrants had arrived at Hendon. Among them was the Autogiro. This had flown up from Hamble to Northolt the previous day and had hopped to Hendon during the afternoon. Mr. R. J. Goodman Crouch, the handicapper-in-chief, was said to be searching for a 4-armed slide rule with which to handicap the thing. Later it was taken to the compass base to have its compass swung. The idea of an autogiro *having* a compass, somehow seemed to strike people as being funny.

Mr. Goodman Crouch, during the afternoon, seemed to be getting more and more perturbed as everyone seemed to be pleased with their handicaps, and there were no grousers. Later on it was found that everyone actually *was* pleased so that that must show nearly as satisfactory handicapping as everyone grousing.

The Master of Sempill arrived by surface accompanied by the Hon. Mrs. Sempill, having left his Widgeon at Salisbury for engine adjustments. It was brought up by another pilot at 5 p.m. Everyone was very glad to see Mrs. Sempill again. She has had a long illness and has not been to a flying meeting for two years.

About five minutes to four, out of a perfectly clear sky, it suddenly started to Moth. There could never have been such a storm of Moths before. There were Mark I Moths, Mark II Moths, G Moths, X Moths, Genet-Moths, and Cirrus III Moths, Moths with big fuselages, and Moths with small fuselages, Slotted Moths, Service Moths, in fact Moths of all kinds and colours.

A WIN AND A PLACE.—Miss Spooner (third) and Mr. Hope (first) at Brooklands after the King's Cup Race.—Mr. Uwins (second) had already absconded beyond the reach of cameras.)—(*"Aeroplane" photograph.*)

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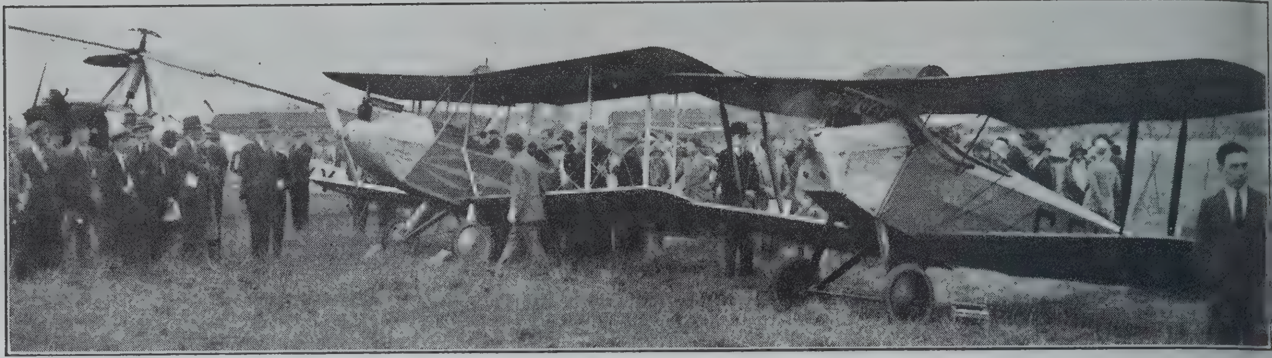


THE OLDEST AND NEWEST.—The old original Baby Avro two-seater (Cirrus) on the right and the new original Simmonds Spartan (Cirrus) in the middle,—and the Auto-giro on the left.—(*“Aeroplane” photograph.*)

There were only 14 Moths in the race, but nearly all of the 500 Moths seemed to have flown over to give advice and stimulation to the Competing Mothers.

During the excitement, the Simmonds Spartan, looking very like another sort of Moth, came in almost unnoticed, and Flt. Lt. Webster, the pilot, nearly succeeded in eluding the photographers.

Mr. Jackaman was flying the Moth which he won in a Xmas draw. As nearly everyone on the aerodrome had taken a ticket in this draw, it was generally referred to as “Our Moth.”

When Capt. Geoffrey de Havilland arrived on a Cirrus-Moth instead of on a Moth with a D.H. Gipsy, Lt.-Col. Darby of A.D.C. Aircraft Ltd. remarked to him how wise he was to go round on a Moth with a *real* engine.

The last machine to arrive before zero hour was the Avro Avenger, piloted by Flt. Lt. Summers, who had taken the machine over from Flt. Lt. Luxmoore who was unwell.

There then remained only Mr. Lacayo, who had scratched, and three Widgeons, to be piloted by the Master of Sempill, Mr. “Harold Brooklyn,” and Mr. Cazalet. All these arrived before 5 p.m., so that we had the unique sight of 37 out of 38 entrants for an air race all ready and present the previous day. Which looks as though the fun is going out of air racing.

One noticed that the rudder of the Autogiro bore the advice “Beware of Rotors.” This seems to be very sound advice indeed.—G. D.

THE START.

(As observed by C. G. G.)

The start of the Race for the King's Cup was without any particularly emotioning incident. Of the 38 entrants the only absentee was Mr. Lacayo of Manchester. All the rest, bar one, got off in the order shown in the table which appears at the end of this article, on page 200.

An official programme was issued by the Royal Aero Club and was on sale to the few people who turned up to see the start. The said programme was about the most muddle-headed thing one has seen. The machines were put down in the order in which they were entered by their owners, or by their putative owners. Consequently the order in which they appeared in the programme bore no relation to anything, neither starting time, handicap, horse-power, performance or anything else. And the machines were indicated in the programme only by numbers, and not by their official lettering.

It is quite time that somebody tackled this question of programmes sensibly. People who follow air racing at a closely are beginning to know machines by their letterin as well as people know horses by their names. “QN,” th Farnborough-faked Avian, “RQ,” Mr. Harold Brooklyn' Widgeon, “TE,” the Parnell Imp, and quite a lot of othe machines are quite well-known by their official letters. An the officials on the course, such as timekeepers and hand cappers, always know machines by their letters from seein them constantly at different meetings. Numbers, on th other hand, mean nothing and they are nothing like as eas to see when the machines are in the air as are the lette on the fuselage or under the wings.

Even apart from that, the idea of issuing a programm in which the machines did not appear in their order starting either with the scratch man at the top and th limit man at the end, or the other way round, is simpl silly. None of the unfortunate people who bought the pr gramme had anything to tell them which machine was th next due to start, or when any machines were due to sta at all.

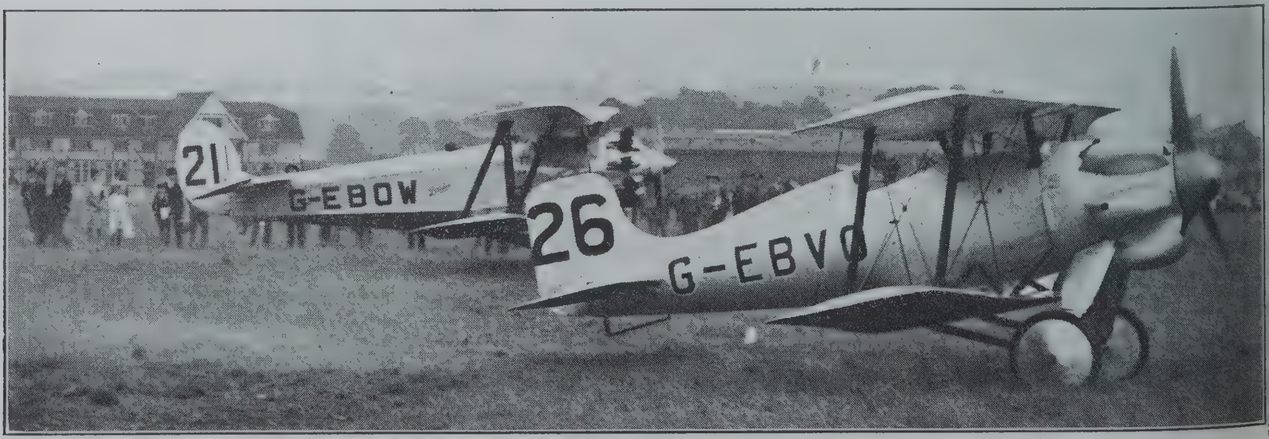
Of course there is the excuse that the handicaps are no got out till a comparatively late time. But there is no earthl difficulty about getting a two-page slip printed with th machines in the proper order and their handicap times at tached. It is only a matter of five or six hours for any com petent jobbing printer.

THE GAMBLING INSTINCT.

Before the start the entrants and hangers-on of at leas a dozen machines were perfectly certain that they wer going to win on the handicaps. And on the other han several machine-crews were going about with unnaturall long faces say that they had been deliberately out handicapped. Which is another sign that a crew expects t win,—for by pulling a long face they hope to put other peopl off backing their machine so that they themselves can get longer price out of the bookmakers.

In this instance such a hope was baseless, for there wer no bookmakers there. Our old friend “Long Tom,” wh was professionally the Sign-Writing King and a bookie as side-line, unfortunately died last year, and apparently n other bookmaker has enough interest in aviation to tak on Long Tom's work. Personally one never backs horses dogs, aeroplanes or anything else, but most people do lik to have a bet, and Long Tom was so dead straight and s kindly and so amusing that he really is a loss to aviation.

The nearest approach to a bookmaker (of the baser sort was a gentleman who tried to work the three-card tric



BACK-MARKERS.—The Bristol 101 (Jupiter VIa), the newest thing in two-seaters, and the Blackburn Lincock (Lynx IV), the latest thing in low-powered single-seat fighters, getting-off at Hendon.—(*“Aeroplane” photograph.*)

mong the crowd of perhaps a couple of hundred people on he aerodrome. He had with him as accomplices a gang of four r five Jew-boys who tried to make themselves unpleasant vhen an R.A.F. officer ordered the man and his umbrella nd his cards off the aerodrome. But a corporal and a couple f men very soon settled their hash for them. Evidently ublic interest in important air racing has reached a pretty ow ebb when the nearest it can produce to a respectable ookmaker is a disreputable three-card man.

GREAT EXPECTATIONS.

As to the machines which expected to win, probably most nterest centred on the Avro Avenger, which was credited vith doing something like 190 miles per hour for a lap of the ourse at Blackpool. Only a few people knew that when the ourse was properly measured that speed came down to 170 n.p.h., though that is quite good for a short course with hree bad corners in it. Anyhow the people connected with he Avenger had been going about looking mournful for a ouple of days so naturally everybody thought the machine nust be very fast.

Another machine which was fancied by those in the know vas the Baby Avro which was handicapped to do something bout 84 m.p.h. to win and was known to be able to do 98 n.p.h. This machine is particularly interesting because it is he very first two-seater Baby Avro ever built. It has been itted with a Cirrus engine by Mr. Miles of the Gnat Aero Co., nd as a result it is naturally many miles an hour faster han it was with its old 40 h.p. water-cooled Green. If there ad been any betting on the race it would probably have tood at a pretty short price despite the fact that the pilot, Mr. R. A. Whitehead, is quite a novice and has had little xperience of cross-country flying.

Another hot favourite among the knowing ones was the Autogiro which with a Mark IV Lynx is credited with doing 20 m.p.h. At that speed it could not possibly have lost the ace on the handicap. But very few people had faith in its bility to stay the course, so it would have been pretty low n the betting. Nobody mistrusted its engine, but people ave yet to be converted to faith in its own queer mechanism.

Before the start the sky was overcast with clouds and ccasionally had a look of rain. Also for a while the wind vas distinctly chilly,—rather a relief after the past few days. Mr. Entwistle of the Meteorological Department prophesied ine weather for the next day, though the weather reports aid that there was occasional rain in the North and that low louds over the Cheviots pulled the visibility down to about oo yards in places,—a pleasant prospect for pilots of even low machines, let alone some of the really fast back-markers. Anyhow, according to Mr. Entwistle, Iceland had lost its atest fit of depression and there ought to be fine weather vith a nice North wind on the Saturday.

One Moth pilot seemed considerably concerned about finding out the exactly best place to land at the intermediate ontrols, on the grounds that only half-an-hour was allowed or landing, filling up tanks and getting ready to start again. A merely rude bystander assured the Moth pilot that there vas no reason to fuss, for anybody, he said, could top-up a Moth's tank with an ordinary fountain-pen filler in half-an-our, adding that a Moth was not like some of the big nachines which would want a couple of hundred-gallon Bowser-tanks at work on them to get through in time.

GETTING AWAY.

So far as the actual start was concerned there was really othing to report. Nearly all the machines got away in excellent style. Some pilots chose to scrape the grass with their right wing-tips in turning down-wind to head off to the East. Others were careful enough to fly straight ahead and get well off the ground before turning. Some pilots on turning headed straight off in the direction of Epping or thereabouts, others took a more Northerly course, apparently intending to go by way of Cambridge. Even among the most experienced cross-country flyers opinions on this point seemed to vary a great deal.

The start of the Auto-giro was at any rate amusing. The gallant youth who went as passenger did his best while the machine was on the starting line to wind up the windmill by sheer manual labour to a speed which might conceivably help the machine to get off. But in spite of that it did a complete circuit of most of the aerodrome before Mr. Rawson hauled it off the ground. Still one must confess that when it did get off it showed quite a good climb and very respectable speed. How one hates the idea of hanging on that revolving bearing with those huge flail-like blades whirling round and only kept at the proper distance from one another by one bit of wire. The thing is really very ingenious, but one cannot persuade oneself to regard it as a serious flying machine.

The only other incident of any kind was an unfortunate minor accident which prevented Mr. Bulman from starting on the Hawker Heron. As in the case of the Imp and Moth collision at Blackpool, nobody was to blame or everybody was to blame. Colonel Lindsay Lloyd of Brooklands, the Clerk of the Course, had driven his official car out onto the aerodrome some little way from the railings, so as to be near the starting point. One or two other people, seeing the car on the aerodrome with nobody in attendance, drove out to it so as to save themselves that much extra walk from the railings. Among them was Mr. Sydney St. Barbe, who parked his car outside Colonel Lindsay Lloyd's.

Mr. Bulman taxying from the sheds to the starting line saw a crowd of people in front of it who hid the cars from his view. The people separated to let the Heron through and the Heron bumped into Mr. St. Barbe's Morris, bursting its airscrew, damaging its lower wing, completely abolishing the windscreen of the car and pretty well wrecking the near-side mudguard and footboard. The total amount of damage was small, but it might have been quite serious. The marvel is that none of the flying bits of airscrew happened to hit anybody

If, instead of adopting the attitude that nobody in particular was to blame, one wanted to be ultra-critical, one could say that no car ought to have been left on the aerodrome; that seeing that it was an official car other people ought not to have parked theirs alongside it; that in any case the Royal Aero Club ought to have had somebody there to send away cars other than official cars; that Mr. Bulman ought to have had men running alongside his wing-tips to make sure that the road was clear for him; that he might even have had somebody walking right in front of the machine to keep a clear course; that he ought to have been looking over the right-hand side of the machine instead of the left (it really was the left this time); and finally that if the car had not existed the aeroplane would not have hit it and that if the aeroplane had not existed the car would not have been hit. Anyhow, it was a pity that the Heron did not start because she is said to be quite fast and this was the first time that a machine with the Hawker steel-tube construction has been put into a race.

THE FASTEST MACHINE.—The Avro Avenger (Napier Lion), which did the fastest time, getting away at Hendon. —(*"Aeroplane" photograph.*)

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Of the machines which started, certainly one of the most notable was the Spartan designed by Mr. Simmonds. This machine, in which all wings are interchangeable with one another and the elevators are interchangeable with the rudder and the tail-plane tips with the fin, is a most interesting proposition. One hopes to describe and illustrate it in detail at an early date. Meantime a brief description of it is published elsewhere in this paper.

The Baby Avro, as one has said, was an interesting competitor.

For the first hour or so of starting the starters were simply a long succession of Moths and Avians, varied with an occasional Widgeon. Among the Moths the two Gypsy Moths flown by Mr. Broad and Mr. Alan Butler were truly remarkable for their beauty of shape and their look of speed, as well as for their lovely finish. They both looked more like prize pieces of cabinet-making than mere aeroplanes. Mr. Butler lost a minute or two at the start through stalling his engine, having forgotten to turn on the tap of the right petrol tank. But when he did get away the machine was obviously very fast.

Two new Bristols, one a training-school machine with a Titan engine and one an independent design of Mr. Barnwell's for a two-seater fighter, with a Jupiter VI, both attracted a lot of attention. The big machine was alleged to have a speed of about 155 m.p.h., which is very good for a two-seater and considerably faster than any of our Service single-seaters of to-day.

Another machine which drew a lot of favourable comment was the Blackburn Lincock. This is a sporting effort to build a really fast machine behind a 230 h.p. Lynx IV. Seeing that it was put on the same mark as the big new Bristol with a 450 h.p. Jupiter the handicappers evidently think that Mr. Blackburn has succeeded. Anyhow it is a very pretty machine though one is inclined to think that the big pots for the valves and cylinder-heads may reduce the speed.

However, nobody was hurt at the start of the race and practically every machine got away without hesitation. There have never been so many machines started in any other race in this country before. And when there have been a number of machines there has always been some accident or incident or mess-up at the start. So we are entitled to judge from the fact that everything went so beautifully according to plan that British Aviation really is improving.

The Entrants.

There is quite a lot of interest in the list of entrants, apart from the pilots. Out of the 36 starters 12 of the entrants piloted their own machines and can claim to be pilot-owners, for presumably Mr. Hope, though a professional aviator, may be reckoned as a pilot-owner as chief of his own firm. In addition Major Nathan who entered the machine flown by Wing Cdr. Smith and Air Commodore Weir who entered the Autogiro must be reckoned among private owners though not piloting in the race. Also the machine flown by Captain Geoffrey de Havilland is owned by Mr. Butler and the machine flown by Mr. Boyes is owned by Mr. Newton, so that there were 16 private owners in all.

The majority of the other entrants are people in the Trade who support air racing because they believe that it encourages the improvement of the breed. But besides them there are people who have acquired the right to enter a machine either by hire or by borrowing and have entered it for love of the sport. These latter include Mr. R. L Preston of the Coldstream Guards, Captain C. B. Wilson, Sir Charles Wakefield, Mr. Will Hay and Sir William Joynson-Hicks, our esteemed Home Secretary.

AT THE NORWICH CONTROL.

(*Observed by C. M. McAlery.*)

The Norfolk and Norwich Aero Club's Aerodrome at Mousehold was the first stopping place in the King's Cup Race and the Control was organised by the Club, with two Royal Aero Club officials as timekeepers. Mr. Basil Young was in charge of the general arrangements, Captain Harry Cator marshalled the machines and Mr. Cecil Gowing did the recording and communications. A detachment of R.A.F. from Bircham Newton put up and ran a temporary wireless station.

The race caused an unexpected amount of local interest which became embarrassing during the morning owing to the large number of people who invaded the aerodrome, smoked all over the petrol-filling station, climbed into the cockpits of the machines and leaned against the wings and fuselages in spite of all the efforts of the club officials, supported by a Serjeant of the County Constabulary, to damp their airmindedness. In fairness it must be stated that the public did not write their names on the aircraft.

Mr. Yeatman arrived first with Mr. Stamners two minutes behind him. The latter lost a minute in starting up again. Miss Spooner, who had the heart and the ha'pence of the whole county of Norfolk behind her, landed at 09.23 hours having picked up seven minutes over the 99-mile stretch. The Halton machine was sighted next and its life-story was broadcast to the appreciative audience while it landed. Its time was 1 hour 11 minutes 1 second. The Autogiro took 1 hour 5 minutes and 3 seconds doing the longest flight of its existence at that time, and hit the deck cross-wind to the scandalised horror of the budding pilots of the Norfolk and Norwich Club.

Mr. Hope, who arrived about 09.50 hours, seemed in doubt about the finishing line and took the precaution of flying round and crossing it again. Flt. Lt. Bonham-Carter in the Parnell Imp got through in five minutes under the hour and looked like a good thing for a place. The Simmonds Spartan flown by Flt. Lt. Webster caused a great deal of interest but was reported to be slower than had been expected with one hour nine and a-half minutes over the lap.

Mr. Warwick in the A.N.E.C. IV seems to have had trouble from the start. He did not leave Norwich until 12.12, nearly three hours after he left Hendon. The Blackburn Lincock, re-christened by the local paper the Sincock, was Noakesed over the course in 53 minutes. The Avenger, looking rather like an aggressive Avian, came in last "with the roar of a whole herd of Lions." One would hate to meet the Avenger after accidentally referring to one of the Avians as a Moth, although one believes that it was not designed primarily for the purpose of destroying careless journalists.

There seemed to be one grouse at the Norwich control and that was the absence of any weather reports. The weather was dull with heavy clouds, and the going was bumpy and several pilots were heard bleating for weather reports for the next lap. A heartless she-spectator thought, audibly, that modern aviators were a spoon-fed lot.

SIDE-BY-SIDE.—The Blackburn Bluebird (Genet), piloted by Flg. Off. Birt and entered by Mr. Rupert Preston (passenger), getting-off at Hendon.—(*" Aeroplane " photograph.*)

DIEU ET MON DROIT
BY APPOINTMENT
TO HIS MAJESTY THE KING

KING'S CUP AIR RACE

again won on

Wakefield Castrol

1st.
W. LAWRENCE HOPE,
D. H. Moth Gipsy Engine.

2nd.
C. F. UWINS,
Bristol 101 Jupiter Engine.

3rd.
Miss W. E. SPOONER,
D. H. Moth Cirrus Engine.

also the

SIDDELEY TROPHY

Won by Miss W. E. SPOONER.

C. C. WAKEFIELD & CO., LTD, WAKEFIELD HOUSE, CHEAPSIDE, LONDON, E.C.2

The first light aeroplane to fly from England to Australia

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AT THE NEWCASTLE CONTROL.

(*Observed by* O. B. SERVER.)

The King's Cup has gone to the winner but the race I think has made an impression in this quarter. After the failure of the Flying Meeting last year people began to realise that hard work was required to make any show a success. The result was that all our organisation for this control was complete long before the day and all eventualities had been considered.

We were favoured by having a West wind which meant that the starting line was close to the crowds and so they could obtain a good view of the machines. After the arrival of the third machine they began to come in thick and heavy and everyone had to put a jerk into it to deal with them. Needless to say we managed that all right though the starter very nearly got into a flat spin.

Norman Jones imagined he was being started after his time and as he took off his language could be seen but not heard. It was by no means complimentary to the starter.

J. W. Irving was the Chief Marshal and he saw that all his men did their jobs properly, and a few more besides. P. F. Heppell had the ground organisation to look after and he managed to stow away a goodly collection of cars and people. For a Friday, the crowd was much larger than was expected. Dodds, the new Secretary, managed to get a good deal of work done, as also did Brian Dodds, who was assisting the time-keeper. Because John Bell was supposed to be good at figures he was given a Code Book and the title of Meteorological Officer. That book gave him a sleepless night, but he managed to get all the reports away. The only trouble was decoding all the weather reports. He has now a profound respect for the weather experts.

The R.A.F. detachment from No. 26 (A.C.) Squadron was very useful, especially the wireless section. All Service pilots received special attention from the R.A.F. lads.

The only accident occurred when Yeatman landed his Moth in an impossible portion of the aerodrome; this in spite of the fact that a map had been sent for each competitor, showing the good, bad and indifferent parts of the aerodrome.

The disappearance of Warwick caused quite a stir round here. Miss Leathart on the Grasshopper with John Bell as passenger was over the Cheviots for more than an hour on Saturday. They went as far as Carter Bar with Baxter Ellis, and when he turned west they turned east and raked the valleys for a good hour. No trace at all could be found. The Scottish people are supposed to have been right down to the border. But they may not have come any further south than Hawick, and the hills up to Selkirk are pretty sticky. The R.A.F. sent up two more machines but the weather was hopeless on Sunday, haze and low cloud.

Great disappointment was felt when it was known that the Autogiro was out of the race. One member wanted to have a bet that it would never get as far as Cramlington, but as all were of the same opinion there was no bet.

The Short Mussel dropped on to the aerodrome on Friday and deposited Short himself and Lankester Parker. One great know-all who had been telling the people round about that he had flown most machines informed all and sundry that this was a D.H.33, the only monoplane that de Havillands had ever built.

THE COURSE OF THE RACE.

(*Observations by C. G. G.*)

Information about what had happened to the competitor was hard to come by on Friday night, so one does not pro pose to attempt to give here an account of Friday's happen ings. These are, one thinks, better dealt with in a genera discourse on what one gathered from various competitor and officials and other sources at the end of the race.

Nor does it seem worth while to give the position of th different machines at the various controls. What matte most is the order of arrival at the Glasgow Aerodrome Renfrew which was the stopping place at the end of th first day.

On the way to Glasgow the wind was against the com peitors nearly all the way. On the second day the wind wa largely in their favour except for the last stage from Lympn to Brooklands. Also the weather up in the North was no quite so good on the Friday as it was on the Saturda Consequently the order of arrival at Glasgow gives a fa indication of the relative speeds of the machines and of th ability of the pilots against the wind and under not too eas conditions.

The order of arrival at Glasgow was :—(1) Atcherle (Grebe); (2) Broad (Moth G); (3) Hope (Moth G); (4) Uwin (Bristol 101); (5) Jones-Williams (Bristol 83E); (6) Butle (Moth); (7) Stack (Moth); (8) Bonham-Carter (Imp); (Noakes (Lincock); (10) Miss Spooner (Moth); (11) Jackama (Moth); (12) Summers (Avenger); (13) de Havilland (Moth (14) Martin (Avian); (15) Norman Jones (Moth); (16) Sempi (Widgeon); (17) Brooklyn (Widgeon); (18) Richardso (Moth); (19) Wilson (Avian); (20) Matthews (S.E.5a); (2 Cazalet (Widgeon); (22) Webster (Spartan); (23) Cantri (Avian); (24) Percival (Avian).

Those who retired from the race in the first day were follows :—

Yeatman (Moth), damaged his undercarriage at Newcastl

Stammers (Moth), also retired at Newcastle having gon to Birmingham on the first leg of the course in mistake fo Norwich, with the result that he was completely out of th hunt by the time he had put right his mistake.

Trench (H.A.C.1) retired at Leeds with a broken magne drive.

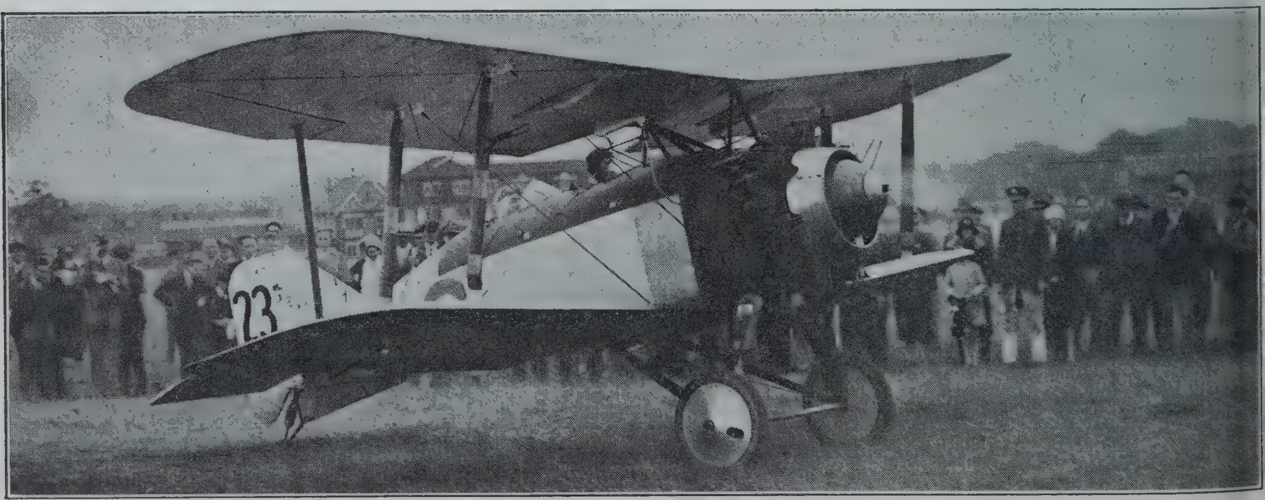
Birt (Bluebird) forced-landed at Minworth.

Whitehead (Baby Avro) landed in a field near Bury S Edmunds because of air-sickness, turned over and damage his machine rather badly.

Rawson (Auto-Giro) ran out of petrol near Nuneato landed in a small field and could not get out,—as must hav been fairly evident after its run round at Hendon.

Smith (Moth) and Boyes (Avian) collided on the aerodrom at Nottingham and both retired. This was singularly u fortunate, as Mr. Boyes was flying an Avian just bought Mr. Newton of *Airways*,—which thus becomes the first pape to keep a tame aeroplane for its own special work. M Sprigg, the editor of *Airways*, was a passenger in th machine, intending to have a first-hand experience of th race.

Soden (Moth) had a forced landing near Glasgow an there retired from the race. Apparently what happene was that his airscrew detached itself and cruised off into th atmosphere. Flt. Lt. Soden watched it into a field an landed as near as possible to it. Unfortunately he was n able to stick it on again and continue.



THE HALF-WAY LEADER.—The Gloster Grebe two-seater (Armstrong Siddeley Jaguar) which was leading at Glasgow.—(*"Aeroplane" photograph.*)

THE

SIDDELEY TROPHY TOUR

FOR THE

CHALLENGE CUP

PRESENTED BY Mr. J. D. SIDDELEY FOR COMPETITION AMONGST LIGHT AEROPLANE CLUBS.

FIRST

Miss W. E. Spooner (London Aeroplane Club) flying her own Moth, now in its third year and fitted with the original first 60 h.p. Mark I. Cirrus engine, with already nearly 1,000 flying hours to its credit.

MOTH

SECOND

Mr. Alan S. Butler (Bristol and Wessex Aeroplane Club) flying his own 85-100 h.p. Gipsy Moth.

MOTH

THIRD

Mr. A. C. M. Jackaman (London Aeroplane Club) flying his own Cirrus Moth.

MOTH

FOURTH

Mr. Norman Jones (London Aeroplane Club) flying his own Cirrus Moth.

MOTH

FIFTH

Lieut. L. G. Richardson, R.N. (London Aeroplane Club) flying his own Cirrus Moth.

MOTH

DH

MOTH

"THE LIGHT CAR OF THE AIR"

Streets

THE DE HAVILLAND AIRCRAFT CO. LTD., STAG LANE AERODROME, EDGWARE, MIDDX.

Ragg (Avian) had a forced landing near Atherstone but did not crash his machine as was reported.

Warwick (Anec-IV) left Newcastle and thereafter disappeared.

Jones (Martinsyde) smashed his undercarriage getting off from Castle Bromwich, probably because he had small racing wheels on the machine.

The fastest time to Glasgow (Renfrew) was done by the Avenger, which averaged 144 m.p.h. The big Bristol was obviously faster than that, but owing to the compass trouble before reaching Norwich, her actual time over the course was slower.

At Birmingham and Newcastle, Miss Spooner, who started third from Hendon, was leading the field, but she lost her way over the Cheviots, or over the hills round Selkirk, and so was tenth at Glasgow. Miss Spooner said that when flying over the hills she found herself close to a hillside which she had not enough power to climb. Consequently she flew round it until she discovered an up-current on the windward face of it, which lifted her high enough to get over the top of the next and higher hill. One might expect an R.A.F. pilot who had done a couple of years in the Kurdish Hills or on the Afghan Frontier chasing around looking for free lifts of this kind. But one hardly expects a woman pilot to be quite so air-wise.

After the leading pilots had landed, the Glasgow Corporation Trophy for the first light aeroplane to arrive in Glasgow was presented to Mr. Hope. One is told that the Glasgow people were extraordinarily kind to everybody. Each pilot on landing was asked whether he would like to stay in an hotel or in a private house.

A number of the best people round Glasgow had offered free accommodation to the competitors and in consequence, to use the pet phrase of the American provincial papers, "a happy time was had by all." One can well believe it, for nowhere has one met more whole-hearted open-handed hospitality than in Glasgow.

Mr. Warwick's Death.

So many other people failed to arrive at Renfrew that nobody worried about the non-arrival of Mr. G. N. Warwick in the Missel Thrush (the Anec-IV) for some considerable time. Often in air races a machine and pilot spend the night out, though generally the pilot gets a telephone message through before night.

But by Saturday morning as no word came from or of Mr. Warwick search was made for him by air and on the ground everywhere on the line from Newcastle to Renfrew.

Machines from the Newcastle Club, from various Scottish sources and from the R.A.F. searched the Cheviots and the hills round Selkirk and Peebles. Eventually, on Monday, Mr. Warwick's body and the wreck of the Anec-IV were found by a shepherd on Broad Law, near Peebles.

BROOKLANDS—FEATURING THE KING's CUP RACE.

(*Observed by Geoffrey Dorman.*)

One read in the daily papers that the finish of the King's Cup Race was to be at Brooklands, and to amuse the crowd who would come to see the finish, the R.A.F. would give a display of flying and there would also be a 200-mile race for motor-cars. This at any rate seemed to be putting things in the right perspective.

There were at 12.30 hrs. already a number of machines in the air. The Henderson Flying School Avros were carrying joyriders, and an S.E.5a was flying round carrying a banner on the tail advertising itself for sale at £300.

It was difficult at first to find any trace of the air officials but one eventually located the ever-helpful Mr. Goodman Crouch in Col. Lindsay Lloyd's office and was then able to obtain all information required.

Therefore one parked the Morris Oxford-and-Asquith (which was attending its last flying meeting before being turned out to grass after faithful service) by the side of the track with the intention of using him as a grand stand from which to watch the motor-car side-show. One then discovered however that the centre of attraction was over at the sheds. By this time however the O. and A. was hemmed in on all sides and one was unable to abstract him. Being unwilling to face the famous Desert March to the sheds one embarked in a friend's Lagonda.

On arrival one found that Sir Frank MacLean's Caravan last seen at Hendon had now come to rest by the corner of the track sheds, and was in use as the "office." Incidentally these must be the oldest aeroplane sheds in England, if not in the World, and they take one back to the good old pre-war days with quite a jerk.

By this time it was 15.30 hrs, and the surprising news came through that Mr. Hope and Miss Spooner had already left Lympne for Brooklands. One says "surprising" for one had been led to expect the finish at about 17.00 hrs.

At about 15.50 hrs. a Moth came into view flying low and fast. Having crossed the track it was seen to be Mr. Hope's machine. Thinking all was over Mr. Hope proceeded to loop and stunt round before landing to claim the adoration of the populace. Having landed Mr. Hope at once switched on his well-known winning smile and was surrounded and cheered. But he had reckoned without the low cunning of the Royal Aero Club officials.

Suddenly there was terrific hooting from the direction of the paddock and Sir Frank MacLean's white Rolls-Royce came tearing across the aerodrome and told Mr. Hope he had not crossed the finishing line.

The winning smile was switched off and the engine was switched on all in one movement and within about 30 seconds Mr. Hope was in the air again. With superhuman skill he located the cunningly-concealed finishing line landed again and the winning smile was switched on again *fortissimo*.

Pilots would do well to remember that it is safest to land as soon as possible after a race, before throwing stunts, to make sure they have won, as you never can tell with Aero Clubs.

Mr. Hope had a very narrow squeak, for no sooner had he landed a second time when Mr. Uwins appeared on the Bristol and crossed the line about a couple of minutes after Mr. Hope.

The line was placed so that the Vickers Works laid it stymie from the incoming machines. So far as one could see very few finishers *did* cross it.

THE ILL-FATED ANEC-IV.—The late Mr. Warwick starting from Hendon.

A 5-cylinder air-cooled radial. Specially designed for land training aircraft. Its cylinders and certain other parts are interchangeable with those of the Jaguar and Lynx.

THE WORLD'S ENDURANCE RECORD
of 60 hrs. 7 mins. 32 secs. was made on a
Siddeley PUMA
engined D.H.9 by Adjutant Crooy and Sgt. Groenen.

ARMSTRONG SIDDELEY MOTORS LIMITED,
Coventry, England, and 10, Old Bond Street, London, W.1.

A70.

LOWN AND KNOWN ALL OVER THE WORLD.

After Mr. Uwins came Miss Spooner, who received an acclamation as the winner of the Siddeley Trophy.

Again out of a clear sky it started to Moth. Out of the first twelve machines to finish nine were Moths (of all sorts, types, and marks). Which speaks for itself of the Moth as a Moth and as a practical vehicle. It also says something for Mr. Halford, the designer of the Cirrus and Gipsy.

Captain Geoffrey de Havilland also scores a distinct triumph as the father of the Moth, the more so as he himself finished fifth, and Mr. Butler, Chairman of the De Havilland Company, finished sixth. Capt. de Havilland carried Mrs. Butler as passenger, as the machine was Mr. Butler's own private Moth.

Altogether it was an exceedingly satisfactory race. Twenty-three machines out of 36 (35 if one excludes the old Dutch scenery, which nobody expected to finish, and is only a freak anyway and not a practical aeroplane) finished the course, which is one believes a much higher percentage of finishers than was the case in the 200-mile motor-car race which was won by the ex-aviator Mr. Malcolm Campbell. Incidentally one would remind Mr. Campbell that if a certain shed at Gosport had been a foot higher in the winter of 1916-17, he would probably not have won the 200-mile race on Saturday.—G. D.

THE FINISH.

(Observed by C. G. G.)

The finish was not what one could call exciting. First of all it happened about an hour earlier than it ought to have done. Consequently quite a number of people who would have liked to have gone round to the sheds to see the machines arrive were over at the paddock watching the light-car race.

The broadcasting arrangements were excellent. But there was a certain difficulty in following the course of the air race even with the help of the excellent broadcaster. For example, one heard something like this :—" The first aeroplane to leave the control at Bristol was *wow-wow-rrrrrr-eeeeeee,*" as somebody shot between the sandbanks on the finishing straight with his throttle closed and then opened up with a supercharger which made more row than a ship's siren.

And the brutes always did it at the critical moment when the broadcaster was mentioning some definite name or place. It did not matter where one was in relation to the track. There was always some car or other hurtling by, making about as much noise as a Fox formation at a Pageant. And, considering that some of the cars were about 20 Cat-power, the noise they made was surprising.

Anyhow, Mr. Hope hove in sight over the Vickers sheds and landed peacefully, thinking himself a comfortabl winner. As he taxied up to the parking place officials rushe out and told him that he had not crossed the finishing line Promptly Mr. Hope leapt feverishly into his machine again opened his throttle and dashed for the finishing line. So hi actual official time was probably a couple of minutes slowe than his real time.

Other competitors coming in rather higher evidentl spotted the line all right, for there were no other mistake of like kind.

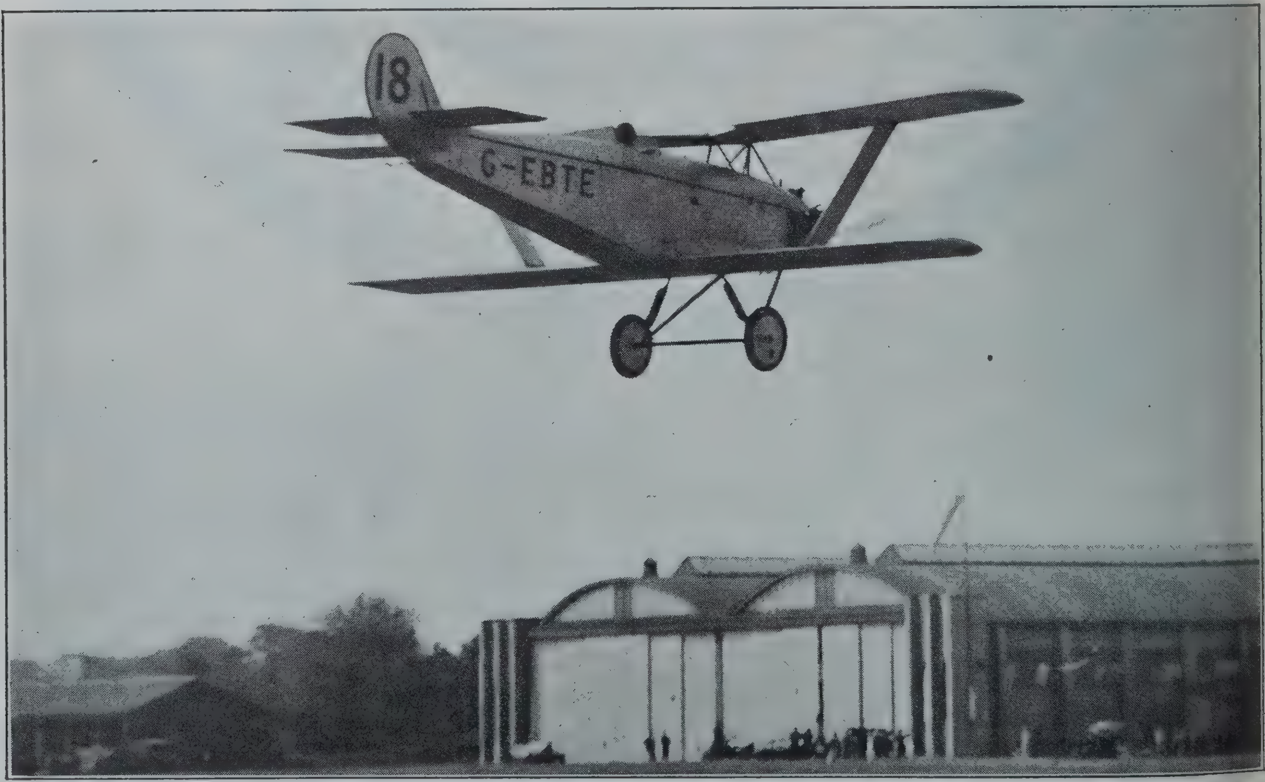
Thereafter the machines arrived in the order and at th intervals indicated in the table which appears elsewhere Mr. Cantrill was the only competitor who left Glasgow an failed to reach Brooklands. The others nearly all reporte a good voyage with entire freedom from trouble.

Happenings on the Way.

Capt. de Havilland, who was flying Mr. Alan Butler's ol Moth with Mrs. Butler as passenger, said that the visibilit was good all the way except for dodging a few hill-tops i the mist on the first stage of the home journey. Incidentall he remarked that he had the throttle of his Cirrus wide ope against the stop the whole way and it never missed a beat,— rather a handsome testimonial considering that his primar interest is in the new De Havilland Gipsy engine, but jus what one might have expected from him. The three Gips engines in the race, flown by Messrs. Hope, Broad an Butler, behaved beautifully. One of them had a valve ca replaced at Glasgow and that was the only thing touched

Mr. Hope's Gipsy Moth was an ordinary standard machine but those flown by Messrs. Broad and Butler were speciall streamlined for the job and consequently were handicappe out of a place. But they put up a magnificent show, as thei speeds in the table will show. There is interest in notin that these three Gipsy engines were not faked in any wa for the race. They had the standard 5 to 1 compression, usin straight petrol without benzol or any other kind of dope and they were all giving 100 h.p. full out. Both the Gips Moth and the Gipsy engine may be set down as proved suc cesses. And the two specially streamlined Moths are cer tainly the most beautiful aeroplanes one has seen.

Of the late arrivals, Flt. Lt. Bonham-Carter on the Parnal Imp reported doing 120 m.p.h. from Glasgow to Liverpoo over the ground, but that after that something went wron with the oil arrangements and he began losing oil heavil and losing power with it. This machine originally had ver neat streamline helmets over the cylinder heads, but the had to be removed because officially they were regarded a streamlining which had not been declared for the benefit the handicappers. So the question arises as to what con stitutes cowling and what does not.



AN IMP-EDIMENT.—The Parnall Imp (Genet) finds the big R.A.F. sheds (now the Hawker Co.'s) at Brooklands in its way when landing at Brooklands. —(*" Aeroplane " photograph.*)

The telegrams below from Lady Heath, Sqd. Ldr. Hinkler and Capt. Lancaster show the high qualities of the Fairey Metal Airscrew where efficiency coupled with complete reliability are required.

Sole Manufacturers of the Fairey Patent Metal Airscrew (Reed licence) for the British Empire:

THE FAIREY AVIATION COMPANY LTD., HAYES, MIDDLESEX.

TELEGRAM.

Bundaberg, 1st March, 1928.

"Many thanks congratulations must congratulate you on Fairey Reed Propellor which is giving superior results in spite of extreme variations heat cold and heavy rain during past eighteen months use including racing and touring."

HINKLER.

TELEGRAM.

Heliopolis, 4th April, 1928.

"Did not have to even think of carrying spare propellor on my Avian which is first light aeroplane fly Cape to Cairo your metal one functioned perfectly in even extreme heat hundred and twenty fahrenheit South Sudan, this is third machine I have had it on."

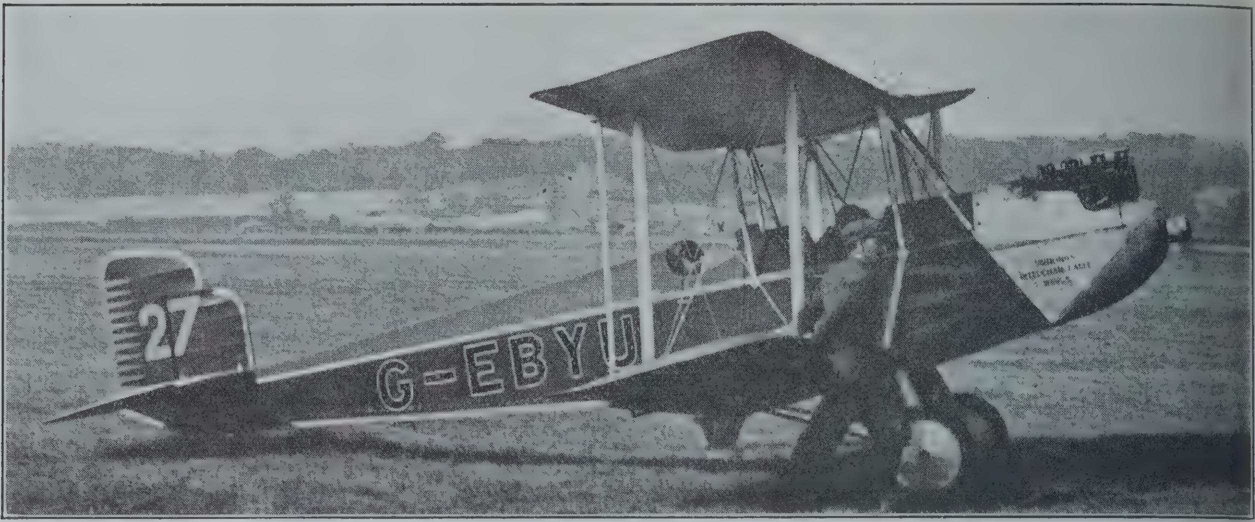
HEATH.

EGRAM.

Karachi, 8th December, 1927.

"Metal propellor has given perfect satisfaction under trying conditions wooden propellor would have been useless."

LANCASTER.



THE NOVELTY OF THE RACE.—The Simmonds Spartan (Cirrus) with interchangeable wings and control aerofoils. She is here seen taxying in at Brooklands with Mr. O. E. Simmonds at the wing-tip and Flt. Lt. Webster in the machine.—(" *Aeroplane* " *photograph.*)

The Simmonds Spartan put up a very good show, but it suffered all the way from excessive petrol consumption and loss of power. As is generally known, the machine was rushed through in a hurry and was damaged through running into a ditch in the course of a test flight. Consequently there was no time in which to tune the engine properly. Therefore its speed may safely be assumed as well up to that of other light aeroplanes in its class.

Flt. Lt. Webster reported that it is a good machine to land because although he landed it fast its undercarriage was very satisfactory and it pulled up as if it had four-wheel brakes. This was doubtless owing to its being rigged with a bigger angle of incidence than was absolutely necessary.

Mr. Martin who had done well on the first half of the course, suffered from a leaking petrol tank all the way from Glasgow.

Col. Sempill had valve trouble over most of the second day and arrived very late.

Flg. Off. Atcherley, who was leading at Glasgow on Friday night and looked a fairly certain winner, broke a flying wire before reaching Liverpool. The delay in replacing the damaged wire lost the race for him.

Considering the mishap to the Grebe and the time lost by Mr. Uwins over his defective compass, and his own mistake in not crossing the finishing line correctly, Mr. Hope was lucky to win. But the race is not always to the swift nor the battle to the strong, and luck as well as judgment is necessary to make any success in this World, so nobody will grudge Mr. Hope the honour of having won the King's Cup for the second time.—C. G. G.

The King's Message.

The following message was received by the Royal Aero Club from His Majesty the King through Lord Stamfordham :—

The King thanks you for informing His Majesty of the result of the King's Cup Air Race, and asks if you will convey his congratulations to the winner, W. L. Hope.

The Prize List.

The following are the prizes which were won in the King's Cup Race :—

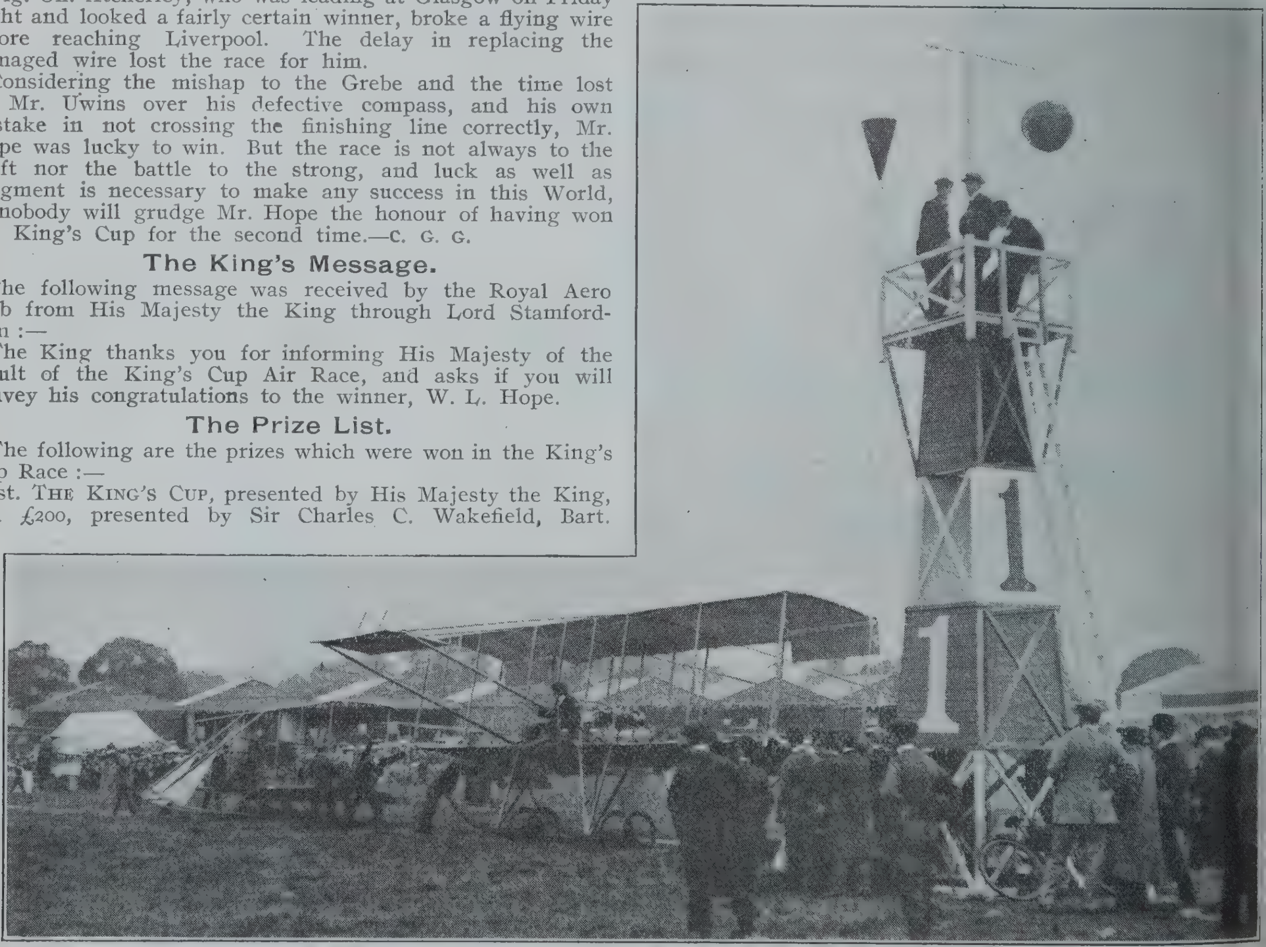
1st. The King's Cup, presented by His Majesty the King, and £200, presented by Sir Charles C. Wakefield, Bart. Winner, W. Lawrence Hope, on D.H. Moth G. (D.H. Gips 85 h.p.).

2nd. £100 (£50 presented by Mr. Vernon Bellhouse ar £50 presented by Sir Charles C. Wakefield, Bart.). Winne C. F. Uwins, on Bristol 101 (Bristol Jupiter 490 h.p.).

3rd. £50 presented by the Blackpool Tower Co. Lt Winner, Miss Winifred E. Spooner, on D.H. Moth (Cirr Mark I, 60 h.p.).

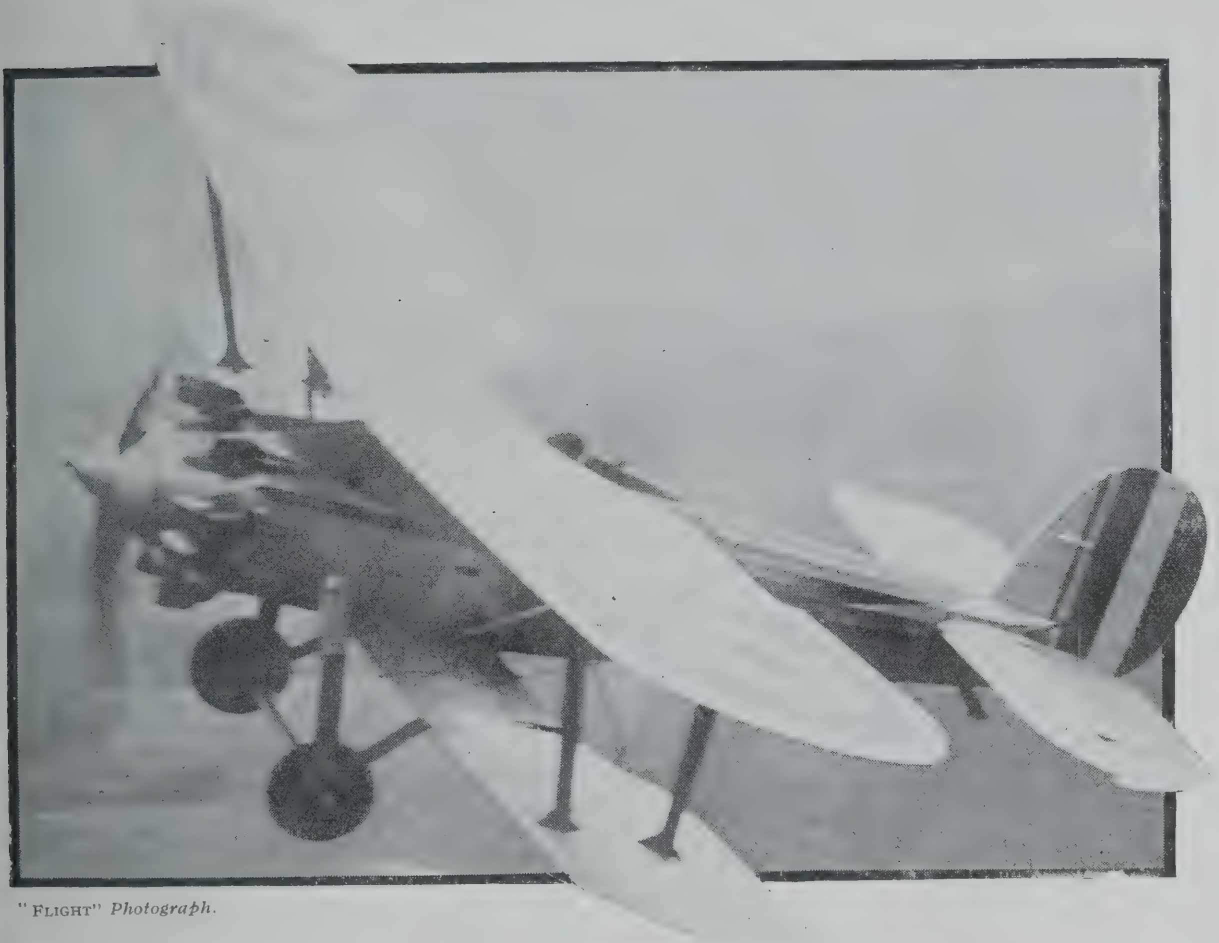
Special Prize of £100, presented by Mr. Alan S. Butler f the fastest time round the course. Winner, Flg./Off. Summers, on Avro Avenger (Napier Lion, Mark IX 550 h.p.

Other prizes were presented as follows :—£40 from Gla gow Corporation; £40 from *The Glasgow Herald;* a cup fro *The Folkestone Herald*; and five guineas from *The Easte Daily Press.* The names of the winners and the conditio were not obtainable at the time of going to press, three da after the race.



A REMINISCENCE.—The start for a handicap race on an Aerial Derby Day at Hendon in 1913.—A Beatty-Wright and a Grahame-White box-kite on the starting line.

"Bristol"



"FLIGHT" *Photograph.*

Here are some of the Press comments regarding the "Bristol" Single-Seater Fighter shown at the Paris Aero Exhibition:

"THE AEROPLANE," July 11th, 1928.

"The real *clou* of the Show, the thing which everybody who was anybody in aviation went to see, was the 'Bristol' Single-Seater Fighter . . . Though our old friends the Bristol Aeroplane Company from their earliest days . . . have been noted for the excellence of their workmanship, and though everyone will freely admit that Bristol workmanship is still unsurpassed by anyone else . . . . ."

"FLIGHT," July 5th, 1928.

"'The Cameo of the Show,' this was the expression used by a French engineer in reference to the 'Bristol' Single-Seater Fighter."

"THE TIMES," June 30th, 1928.

" . . . . A Single-Seater Fighter shown by the Bristol Aeroplane Company . . . very considerably surpasses any other in the Show in performance, ingenuity of design, workmanship and equipment . . ."

Full particulars on application to :

THE BRISTOL AEROPLANE CO., LTD.,
FILTON — BRISTOL.

Telegrams: "Aviation, Bristol." *Telephone: 3906 Bristol.*

KING'S CUP AIR RACE.

Racing No.	Identity Letters, G—E:—	Machine	Pilot	Entrant	Starting Time, Hendon	Arrival Time Glasgow	Speed, 1st Day	Place, 1st Day	Starting Time, Glasgow	Arrival at Brooklands	Speed, 2nd Day	Place, Complete Race
					h. m. s.	h.m.s.	m.p.h.		h.m.s.	h.m.s.	m.p.h.	
38	ME	D.H. Moth (Cirrus I)	E. E. Stammers	Capt. C. B. Wilson, M.C.	8-00-00			[Retired at Newcastle]				
30	VD	D.H. Moth (Cirrus I)	H. M. Yeatman	H. M. Yeatman	8-00-00		[Damaged at Newcastle]					
25		D.H. Moth (Cirrus II)	M. A. Lacayo	M. A. Lacayo	8-04-39				[Scratched]			
37	OT	D.H. Moth (Cirrus I)	Miss W. E. Spooner	Miss W. E. Spooner	8-09-12	17-47-54	75·68	9	8-0-0	16-0-33	79·29	3
4	OO	H.A.C. II (Cherub III)	Flt. Lt. C. F. Le Poer Trench	Wing-Cdr. C. D. Breese, A.F.C.	8-09-12			[Retired at Leeds]				
28	SZ	Blackburn Bluebird (Genet II)	Flg. Off. L. S. Birt	R. L. Preston	8-17-58		[Forced landing at Minworth]					
16	AUM	Baby Avro (Cirrus II)	R. A. Whitehead	R. A. Whitehead	8-30-24	[Forced landing and crash at Bury St. Edmunds]						
27	YU	Simmonds Spartan (Cirrus II)	Flt. Lt. S. N. Webster, A.F.C.	O. E. Simmonds	8-34-22	18-27-48	74·53	20	9-05-46	17-27-55	73·06	18
3	YY	Autogiro C.8.L.2. (Lynx IV)	A. C. H. A. Rawson	Air Commodore J. G Weir, C.M.G.	8-42-02		[Forced landing at Nuneaton]					
10	YP	Avro Avian IIIa (Cirrus II)	J. C. Cantrill	J. Parkinson	8-52-56	18-56-28	67·27	21	9-53-31	[fcd.lng. nr. Tun.Wells]		
2	PQ	D.H. Moth (Cirrus II)	Lieut. L. G. Richardson, R.N.	Lieut. L. G. Richardson, R.N.	8-52-56	18-18-49	78·03	16	9-15-52	16-45-10	101·22	12
22	XJ	Avro Avian (Cirrus II)	Bernard Martin	H. J. V. Ashworth	8-56-25	17-52-48	72·68	13	8-53-26	17-51-30	79·74	20
15	YV	D.H. Moth X (Cirrus II)	Wing Cdr. S. W. Smith	Major A. A. Nathan	8-56-25		[Collided at Nottingham]					
12	UX	D.H. Moth X (Cirrus II)	G. de Havilland	A. S. Butler	8-56-25	17-50-05	84.38	11	8-50-43	16-15-57	102·53	5
34	YR	Avro Avian (Cirrus II)	E. W. Percival	A. V. Roe	9-03-10	18-19-19	79·88	17	9-26-54	18-44-4	76·28	23
8	WI	D.H. Moth X (Cirrus II)	Norman Jones	Norman Jones	9-03-10	17-57-08	84·33	14	9-04-43	16-26-41	103·56	9
9	OU	D.H. Moth (Genet I)	Flt. Lt. F. O. Soden, D.F.C.	Flt. Lt. F. O. Soden, D.F.C.	9-06-27		[Lost airscrew outside Glasgow]					
11	RT	D.H. Moth X (Cirrus II)	A. C. M. Jackaman	A. C. M. Jackaman	9-09-40	17-51-12	71·18	12	9-03-58	16-19-54	105·54	7
33	YO	Avro Avian (Cirrus II)	Flg. Off. C. B. Wilson	A. V. Roe	9-12-49	19-31-52	69·18	23	10-49-21	18-18-00	99·72	21
31	ZD	Avro Avian IIIa (Genet II)	G. E. F. Boyes	W. Newton	9-12-49		[Collided at Nottingham]					
35	UF	D.H. Moth X (Cirrus II)	C. Neville Stack	Lieut.-Col. M. O. Darby	9-15-54	17-41-36	91·21	6	9-02-16	16-33-11	100·50	11
29	RM	Westland Widgeon III (Cirrus II)	R. G. Cazelet	R. G. Cazalet	9-18-56	18-27-07	70·82	19	9-50-53	17-26-50	99·25	17
17	QN	Avro Avian (Cirrus II)	Flt. Lt. R. L. Ragg, A.F.C.	P. N. G. Peters	9-18-56		[Forced landing at Atherstone]					
14	RO	Westland Widgeon (Cirrus II)	Col. The Master of Sempill	R. A. Bruce	9-18-56	19-0-18	74·87	22	10-24-04	18-24-00	94·64	22
24	PI	A.N.E.C. IV (Genet I)	G. N. Warwick	G. N. Warwick	9-21-54		[Killed on Broad Law]					
7	YZ	D.H. Moth G (Gipsy)	W. Lawrence Hope	W. Lawrence Hope	9-27-41	17-27-59	98·23	2	9-0-45	15-55-11	103·28	1
18	TE	Parnall Imp (Genet II)	Flt Lt. D. W. Bonham-Carter	G. C. Parnall	9-30-29	17-46-01	113·42	8	9-21-40	16-25-01	109·93	8
13	RQ	Westland Widgeon III (Genet II)	H. Brooklyn	H. Brooklyn	9-38-36	18-10-39	89·61	15	9-54-39	17-8-10	100·53	15
6	YK	D.H. Moth G (Gipsy)	H. S. Broad	Sir Charles Wakefield, Bart.	9-48-46	17-29-53	104·29	3	9-24-20	16-2-41	119·66	4
1	TO	S.E.5a (Airdisco)	F. R. Matthews	Will Hay	9-51-12	18-21-37	90·02	18	10-18-34	17-12-39	113·34	16
5	QH	D.H. Moth G (Gipsy)	A. S. Butler	A. S. Butler	9-58-15	17-38-54	104·46	5	9-43-05	16-16-16	122·06	6
20	YT	Bristol 83E (Titan Mk. I)	Sq. Ldr. A. G. Jones-Williams	H. J. Thomas	10-26-57	17-44-58	112·59	7	10-18-39	16-48-40	123·43	14
36	OJ	A.D.C. Nimbus-Martinsyde (Nimbus)	Sq. Ldr. H. W. G. Jones, M.C.	Lieut.-Col. John Barrett-Lennard	10-39-09		[Crashed at Castle Bromwich]					
23	J/7520	Gloster Grebe (Jaguar)	Flg. Off. R. L. R. Atcherley	Sir Wm. Joynson-Hicks	10-42-25	17-9-27	136·70	1	9-59-02	17-32-06	100·12	19
26	VO	Blackurn Lincock (Lynx IV)	Sq. Ldr. J. Noakes, A.F.C., M.M.	Robert Blackburn	10-48-40	17-46-01	121·36	8	10-42-03	16-31-10	115·32	10
21	OW	Bristol 101 (Jupiter VIa)	C. F. Uwins	Sir George Stanley White, Bart.	10-48-40	17-34-12	126·74	4	10-30-14	15-58-53	159·92	2
19	YC	Hawker Heron (Jupiter VI)	P. W. S. Bulman	T. O. M. Sopwith	10-56-02		[Damaged at Start]					
32	ND	Avro Avenger (Lion IX)	Flg. Off. J. Summers	A. V. Roe	11-23-21	17-48-20	138·26	10	11-19-59	16-46-14	161·67	13

THE SIDDELEY TROPHY PRIZES.

The following prizes were won in the Siddeley Trophy Race, for Pilot-owners :—

1st. CHALLENGE CUP, and prize of £150, presented by Mr. J. D. Siddeley. Winner, Miss Winifred E. Spooner (London Aeroplane Club) on D.H. Moth (Cirrus Mark I, 60 h.p.).

2nd. £75, presented by Mr. J. D. Siddeley. Winner, Mr. Alan S. Butler (Bristol and Wessex Aeroplane Club), on D.H. Moth G. (D.H. Gipsy, 85 h.p.).

3rd. £25, presented by Mr. J. D. Siddeley. Winner, Mr. A. C. M. Jackaman (London Aeroplane Club), on D.H.

KING'S CUP WINNERS.

The winners of previous races for the King's Cup are given below :—

Year	Winner	Machine	M.p.h.
1922	F. L. Barnard	D.H.4a, Rolls-Royce	120
1923	F. H. Courtney	Siskin, Jaguar	149
1924	A. J. Cobham	D.H.50, Puma	106
1925	F. L. Barnard	Siskin, Jaguar	141
1926	H. S. Broad	Moth, Cirrus	90.4
1927	W. L. Hope	Moth, Cirrus	92.8

THE BLUEBIRD SEAPLANE AT THE WELSH HARP.

On Saturday, July 14, Col. the Master of Sempill took a Blackburn Bluebird (Genet engine) off from the Blackburn Aeroplane and Motor Co.'s works at Brough, near Hull, and flew to the Welsh Harp, Hendon, where he took part in the afternoon's Out-board Motor-Boat Meeting.

On nearing London, finding himself short of petrol, he alighted on Barnes Reservoir—in preference to the River—where, despite excited officials on the bank, he filled up from spare tins in the machine, and went on to the Welsh

AERONAUTICAL ENGINEERING
SUPPLEMENT TO “THE AEROPLANE”

WORKSHOP NOTES ON THE BUILDING OF METAL HULLS.

By M. Langley, A.M.I.N.A., A.M.I.Ae.E.*

Introduction.

An earlier article (see The Aeroplane, Mar. 28, 1928) dealt ith the constructional design of a metal flying-boat hull. ıe present one will describe the adaptation of shipyard ethods to the building of the hull illustrated in that article. ying-boat building is little more than shipbuilding on smaller scale and if our designers are going to meet the mpetition of cheap production of excellent designs on the ontinent they must turn to the experience of our generaons of shipbuilders.

It will not be found that metal construction in any way ghtens the load of the designer and draughtsman when mpared with wood construction. Much greater exactitude necessary and the design must be considered in detail. all-metal hull should not be put in hand until the allest parts have been worked out on paper. Metal does t lend itself to subsequent modification and everything ust be foreseen.

For the sake of economy in the works, drawing office exnses are certain to increase when changing over to the wer material. We have a fair comparison in the fference between a modern constructional engineer on steel ame building work, and the jobbing carpenter and brickyer who used to get on almost equally well with or witht architect's drawings.

In the works, however, economies may be effected by e standardisation and efficient layout of plant to secure e minimum movement of material between processes. herever possible, standard jigs and tools should be made and it will be found that a greater degree of accuracy d interchangeability of spares will be obtained.

As has already been pointed out, the design department ould see that hand work is eliminated on every possible casion, and whenever a process such as annealing can be ssed over, this should be done. One of the most important alities in a metalwork draughtsman is the power of sualising every bit of work which must be done to the tail he is designing, and to help the workman to dodge ery unnecessary process. Too often one can see all this rgotten in the heat of developing some pet scheme with eat unconcern of the difficulties and expense involved in development. The number of different angle and channel ctions used for stiffeners and lugs should be kept down thlessly and those permitted should be standardised.

Process of Building.

The first thing to be done in the works is the laying off the lines full size in the mould loft. The offsets supplied the drawing office could hardly be given with a greater curacy than .10 in. since they are usually prepared from lines drawing done in a scale of 1/12th full size. Much ne will be saved both in the works and drawing office, if e body offsets are given to frame stations and not to the ual equidistant ones which have no structural meaning all.

The actual process of laying off will not be described, since presents no novel features and is fully understood by any ipwright used to boat or ship work. An admirable textok on the subject is Attwood and Cooper's “Laying Off, the Geometry of Shipbuilding” (Longman, Green and .). One point does deserve mention, however, and that is importance of having a perfectly flush mould-loft floor, e from excessive cracks and knots and of ample size. is is a thing which may be insufficiently realised by those hout actual loft experience.

The floor should be of at least $1\frac{1}{2}$ in. thick, of hard straight ined pine in wide planks, close-butted together with the tenings so arranged that the surface may be dressed periodically. For each 45 ft. hull a space of 55 ft.×20 ft. should be provided and if several designs are going through at about the same time, it should be remembered that it may be necessary to leave the lines of each one down on the floor, for as long as the boat is on the stocks.

The lines having been faired in the usual way with all frames, stringers, floor lines and shell plating edges added, a check on all the offsets should be returned to the drawing office, and wood templates prepared for the shops. A “scrive board” should be made at the same time. This will differ from a shipyard scrive board in that the work is of such small size that actual “scriving” or cutting of the lines will not give the degree of accuracy required.

The board may be made in the form of a table with a surface of three-ply or some light coloured veneer glued and screwed to a heavy top. The frame lines should then be drawn in pencil and the surface varnished to preserve them.

From these frame lines templates or moulds are prepared. The only information taken from the scrive board is the outside contour of the frame. Each frame should be templated in parts to represent its components—the floor plate, the side frame, the deck beam, the deck and chine corner brackets—the remaining information being taken from the drawings.

It should then be possible to lay each template on a piece of sheet of the appropriate thickness and to transfer all the particulars on to it for cutting and shaping.

When only one machine is being built, the templates may be in thin wood, doing no more than giving the outside shape of the finished plate. Other particulars may be added direct from the drawing.

But when the building is on a production basis, it is advisable to have the templates in sheet steel, of, say, 18 s.w.g., containing the positions of all holes, so that they may be clamped to the plates and used as drilling jigs in addition to giving the outside contour.

A further wooden mould, three quarters to an inch thick, may be made from the scrive board to each frame line, round which the shell angle of the frame may be bent to its correct contour.

Reference to the drawings included in the earlier article show that in the particular design given, these contour lines are, for the most part, straight. It is possible to design a hull with the deck camber, the radius of the deck corner brackets and the flare under the chine, constant throughout most of the length, thus reducing the number of moulds necessary, cheapening and simplifying the construction.

At this stage the levelling of the frame shell flanges to follow the fore and aft run of the boat should be done. For this, it is necessary to turn to the scrive board again and to use a bevel measurer of the type shown in Fig. I.

Suppose that the bevel of the frame at “B” as shown on the scrive board (Fig. II) is required. Then the arrow mark on the bevel measurer is applied to a point “A” opposite “B” on the next frame, the adjustable distance “Y” made equal to the frame spacing and the point of the movable leg “L” is brought up to “B.” The angle of “L” to the vertical leg of the bevel measurer gives the required bevel.

Since the bevel, particularly on the frames at the ends of the boat is likely to vary considerably between the dorsal and keel, the bevel measurer should be used at four or five different positions on every frame.

On setting up the keel and dorsal one may follow the practice of boat and launch builders in using a stout pine mould cut out to the longitudinal profile of the hull. This should be erected and shored up in the actual position in which the boat is to be built, under cover and with a convenient runway above to lift the hull, when complete, on to a trolley for removal. The keel and dorsal plates may then be built into it complete, their top and bottom flange angles added and the whole riveted together. In the meantime the frame

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In the issue of Mar. 28 the name of the author of the article on Constructional Design of Metal Hulls was mistakenly given as Langley. The correct name is that given above.

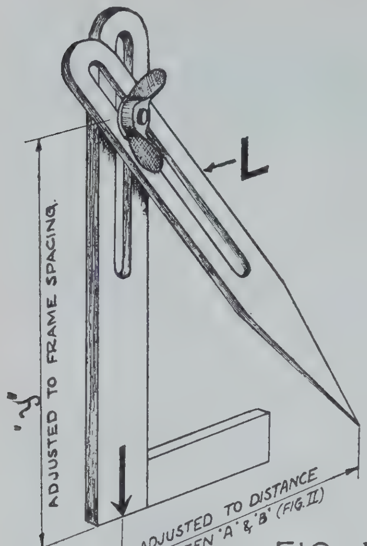

L
ADJUSTED TO FRAME SPACING.
'y'
ADJUSTED TO DISTANCE BETWEEN 'A' & 'B' (FIG. II)

FIG. I

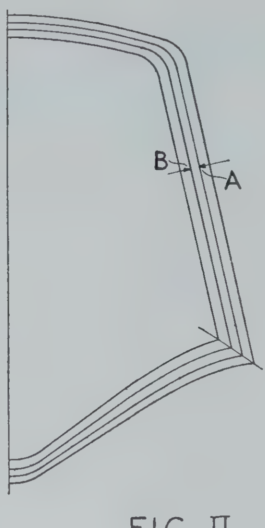


FIG. II.

webs and angles should have been prepared on the bench and be ready to erect on to the keel and dorsal in complete half units (port and starboard).

A constant watch must be kept by the shipwrights on the fairness of the hull as the work proceeds. Distortion of the vessel in the transverse direction is likely to occur as the various weights are added bit by bit. The verticality and straightness of the profile mould should be checked all the way along its length every day, and any sagging corrected at once. In the same way, the frames must be checked before they are finally rivetted up. Until the stringers are actually riveted into the structure, ribbands will of course be necessary to support the frames.

These should take the form of pitch-pine battens running the length of the boat and clipped to every frame, there being one, two or three inches from the eventual position of each continuous stringer.

As will be seen from Fig. III, the rigidity of the frame to ribband attachment depends on the tightness of the bolt. If the frame distorts fore and aft the bolt may be slackened off slightly, the frame tapped back into position, and the bolt tightened again. It is usual in full-sized shipbuilding to lay off the ribbands carefully in the mould loft before they are actually required, and to mark on them the exact position of every frame.

The importance of a day-to-day inspection of the hull for local distortion or sagging cannot be over-estimated. If, say, a shell plate has been templated from a structure which has fallen out of truth, then the plate must either be scrapped or an unfair line expected in the finished boat. And that unfairness becomes all the more evident when covered by a sheet of shell plating.

When the frames are finally riveted up they are ready for the positions of stringer angles and plate edges to be marked on them. These are transferred from the loft floor or scrive board to the frames in the usual shipyard manner by means of flexible laths girthing the frames.

Again following shipyard practice, these lines must b faired in on the hull by clipping light battens along th frame marks from end to end adjusting them until the are satisfactory. The only thing which can ensure real fai ness in these lines is the eye of an experienced shipwright

The next item is the cutting of such notches as are necessary to pass the continuous stringer and girder angle through. Once the keelsons and side intercostal girder are built in, a start may be made with the shell plating. photograph of one of the earlier metal hulls, at this stage o its construction, may be seen in Fig. IV.

Since the hull is "clinker straked," that is, with the lowe edge of each strake of plating as "sight edge" except fo the keel, the first strakes put on are the garboard ones (thos each side of the keel). Until such time as the plating i nearly completed and the profile mould can be cut away, th keel plate cannot be added. It is the last thing riveted o before painting the inside.

The plating is continued strake by strake. Each plate i first cut to shape, this being picked up, if necessary, by mean of a template from the framing. It is then beaten or rolle to fit the contour, the lower edge joggled over the previou strake and temporarily clipped into position again. Th run of the frames and continuous stringers can now be marke on, and the plate taken down again for drilling. Th drilling for the short inter-frame stiffeners should also b done at this stage, and these stiffeners riveted on after anodi treatment but before the plate is finally re-erected.

The plate is now clipped into position again on the fram work, and acting as its own drilling jig, the rivet hole drilled in the frame and stringer flanges. Before rivetin it should be bolted up with service bolts in at least ever fourth hole. To rivet each plate on as soon as erected rather liable to lead to distortion of the framework. O these grounds and also probably to distribute the work mo economically it is advisable therefore to leave the rivetin until most of the shell plating is bolted in position. Rivetin is dealt with in a later paragraph and no more need be sai about it here.

It is during the shaping and fitting of the shell platin that most of the defects due to designing a hull with elabora flares and curves show themselves. In the first cutting the plate, "Sny" (a concave edge to the plate) may found. This is difficult to allow for and not simple to c exactly, besides putting up the percentage of scrap meta Again in the shaping, rolling to single curvature is ve much easier than beating to convexity, which calls for all t skill of experienced panel-beaters, particularly as duralumi even when annealed repeatedly, is always liable to crac under hammering. The metal must be heat-treated eith when rolled or beaten, but rolling calls for no addition annealing if it can be done during the "soft phase."

When the shell plating is completed there remains litt to be done to the hull except the addition of cockpit com ings, fittings, towing rings, etc., all of which are fair straightforward and call for no particular comment.

As is the rule in most aircraft works, all workmen engag in or on the machine should wear plimsoles. Even so, t anodic surface of the metal is liable to wear very thin in o or two places which are constantly being walked upon.

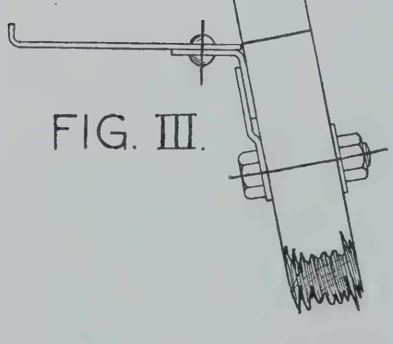


FIG. III.

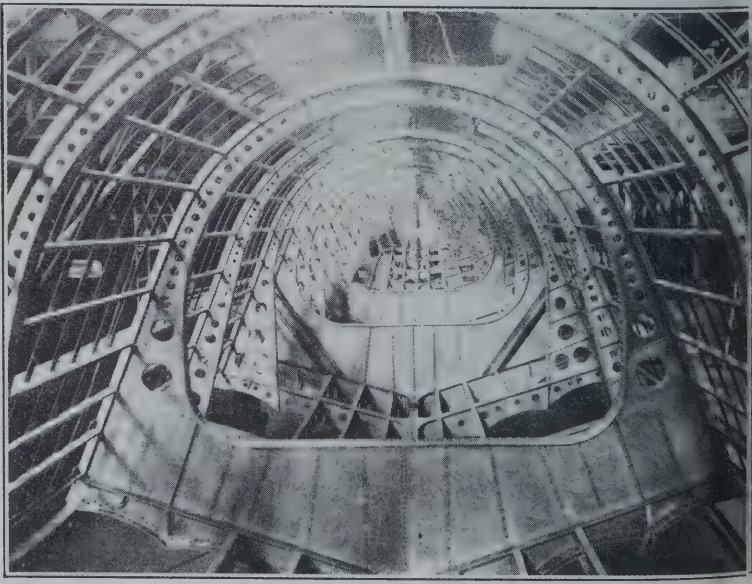


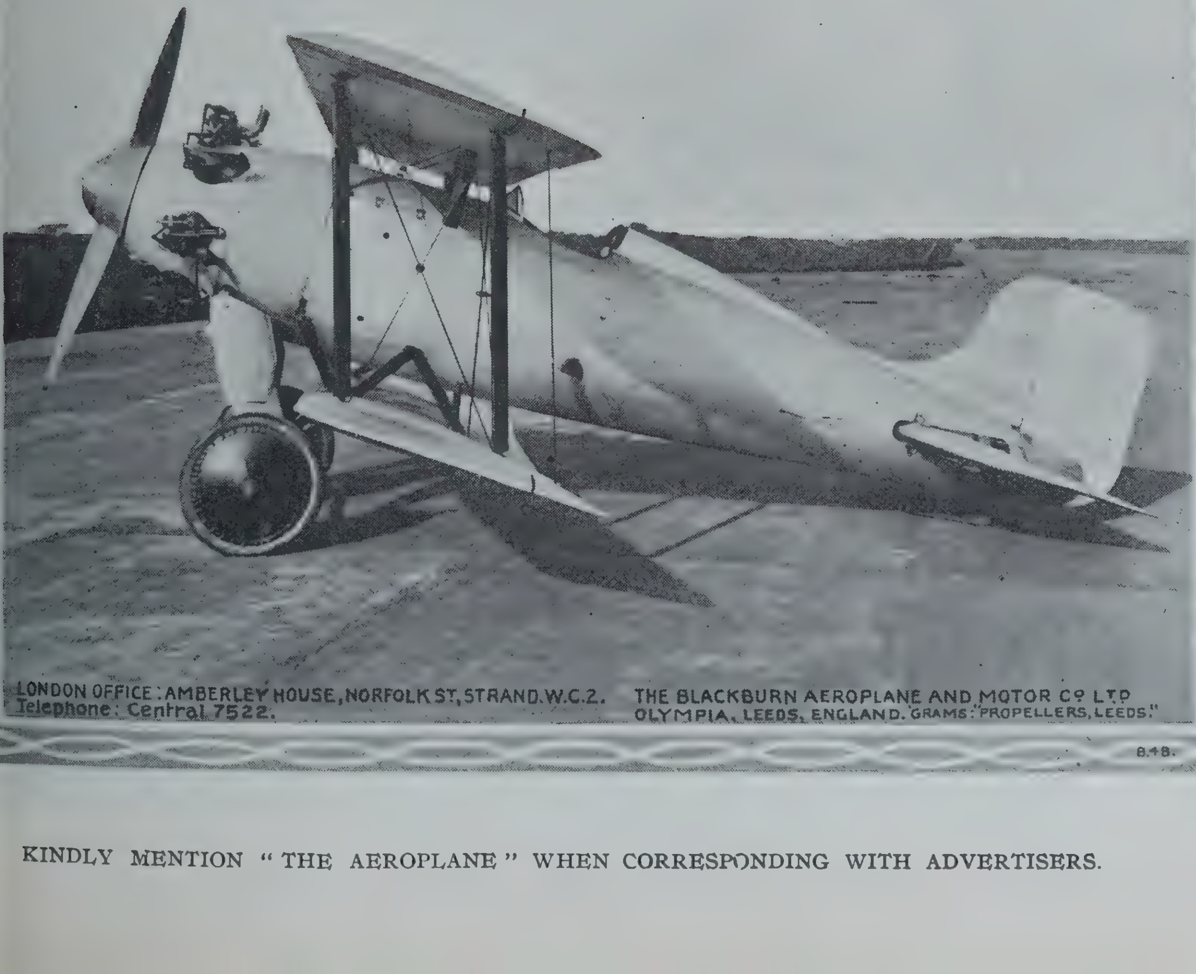
Fig. 4.—Metal hull framing ready for plating.
(Reproduced by Courtesy of the Royal Aeronautical Society.)

Blackburn
AIRCRAFT

THE BLACKBURN "LYNCOCK" SINGLE-SEATER FIGHTER

"The behaviour of the 'Lyncock' was a most remarkable demonstration of what can be done to-day towards producing a cheap moderately-powered high-performance fighter. With an Armstrong-Siddeley 'Lynx' engine of 200 h.p only, this machine carries the same fuel and armament as are carried on standard Service fighters...... and her performance is practically identical with that of any fighter now in use in the R.A.F. that has an unsupercharged engine. If fitted, as it can easily be, with the supercharged 'Lynx' it would equal even these latter."

"The Aeroplane," May 23, 1928.



LONDON OFFICE: AMBERLEY HOUSE, NORFOLK ST, STRAND. W.C.2.
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THE BLACKBURN AEROPLANE AND MOTOR Cº LTD
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B.48.

The hull is now ready for painting and weighing before being handed over to the riggers for assembly with the main planes, engine, tail and control units. All the main attachment fittings for these parts, even when in steel, should have been erected before the boat leaves its building berth. Subsequent drilling and riveting is both uneconomical and unsatisfactory.

Programme of Processes.

The various processes through which each piece of plate or angle passes on its way from store to final erection are as follows :—

(1) Cutting out the blank in its flat developed shape.

(2) Annealing to 360°C. or heat treatment to 480°C. depending on the amount of work to be done in shaping.

(3) Rolling, beating or drawing to shape. Punching of flanged lightening holes, etc.

(4) If the article has been annealed then heat treatmnt to 480°C. must follow here.

Some means of recognising the exact state of all metal in the workshops should be adopted to distinguish between parts which have been completely heat-treated and those which have only been annealed. The charge hand on the salt-bath plant should be held responsible for stamping all annealed material as such and only deleting that marking when it is eventually returned to him for heat treatment. Without this it is exceedingly difficult for the inspection and progress departments to keep track of all units, relying solely on the word of the workmen concerned.

(5) After heat treatment some slight re-shaping may be necessary but it must be done quickly before age-hardening sets in.

(6) The article should now be anodically treated and greased with lanoline. Every small unit must be treated separately before riveting into assemblies, however small these may be.

(7) The unit is ready for erection or riveting into some assembly which in its turn is erected into the boat.

Riveting.

Hand riveting should be avoided not only on account of its expense, but also because of the unsatisfactory workmanship in which it usually results. The heads are badly formed or cracked and the plating often damaged severely by the die.

Pneumatic riveting gives very satisfactory results, provided that reasonable care is exercised and the anodic surface of the surrounding plating is not disturbed. The hammer may be of a similar type to that used in shipyards for light caulking. The " dolly " must be heavy enough and should be shaped to take the rivet head.

Better workmanship might be abtained with a single pressure riveting tool similar in action to the hydraulic machines used on constructional steelwork. But the principle would be difficult to apply to shell riveting since the opposite ends of the rivets are usually separated by so much structure.

As much of the work as possible should be done on the bench by a single pressure tool of this type before erection. For instance, the half-frames may be finished off complete and all inter-frame stiffeners attached to the shell plates.

During the riveting the following precautions should be taken :—

(1) A number of rivets in a row should not be hammered up one by one in their order. The first should be in the middle of the row, then one at each end, then intermediate ones again and so on.

(2) Service bolts should not be spared. Before a line of rivets is put in, every fourth hole should be bolted up and it is even advisable to bolt up a blank hole next on each side of the one into which the rivet is being put.

If these precautions are not observed, it will be found that owing to the thinness of the plating, stretching and creeping will take place under the hammering. A stretched seam will be bowed outwards or inwards, and in flight, where reversals of loading occur, " drumming " will possibly take place and the rivets collapse.

Heat Treatment of Rivets.

Rivets are not usually annealed since they cannot be heat-treated after hammering into position. It is found that if they are heat-treated and quenched they are, for at least an hour or two, as soft as if they had been annealed. This, then, is the usual procedure. They are heat-treated, quenched and used at once. Thus they can develop their full strength on ageing. It is therefore not advisable to heat-treat too many at once, since if the rivets have once hardened they will crack under hammering.

NEW AEROPLANES.

The Cant 22.

Made by Cantiere Navale Triestino, Monfalcone, Trieste. Civil flying-boat for the Trieste—Genoa service.

Wings.—Unstaggered biplane, triangulated strut bracing, top wing much larger span than lower. Timber framed wings, fabric covered.

Hull.—Oval section with Vee bottom and one step. Two stepped wing tip floats on overhang of lower wing.

Tail Unit.—Normal monoplane type, tail plane high upon fin and wire braced. Unbalanced elevators, horn-balanced rudder.

Power Plant.—Three 200 h.p. Isotta-Fraschini " Semi-Asso " engines. (These are one row six-cylinder versions of the 500 h.p. V twelve Asso.) Engines carried on engine mounts from hull or lower wing entirely independent of wing bracing.

Accommodation.—Open cockpit for pilot ahead of wings, cabin for 12 passengers in hull.

Dimensions.—Span 21.0 m. (67 ft. 10 in.), Length 16 m. (52 ft. 6 in.), Height 5.35 m. (17 ft. 7 in.), Wing area 100 sq. m. (1,075 sq. ft.).

Weights and Loadings.—Weight empty 3,400 kg. (7,480 lbs.), Fuel and oil 900 kg. (1,980 lbs.), Pay load 900 kg. (1,980 lbs.), Loaded weight 5,500 kg. (12,100 lbs.), Wing loading 55 kg./sq. m. (11.2 lbs./sq. ft.), Power loading (750 h.p.) 7.34 kg./h.p. (16.1 lbs./h.p.).

Performance.—Maximum speed 180 km.h. (112 m.p.h.), Minimum speed 100 km.h. (62 m.p.h.).

The Cant 23.

Made by Cantiere Navale Triestino, Monfalcone, Trieste. Civil passenger carrying aeroplane for long stage routes.

Wings.—Unstaggered biplane, rigid strut Warren bracing and large overhang on top plane. Wings of mixed steel and duralumin construction.

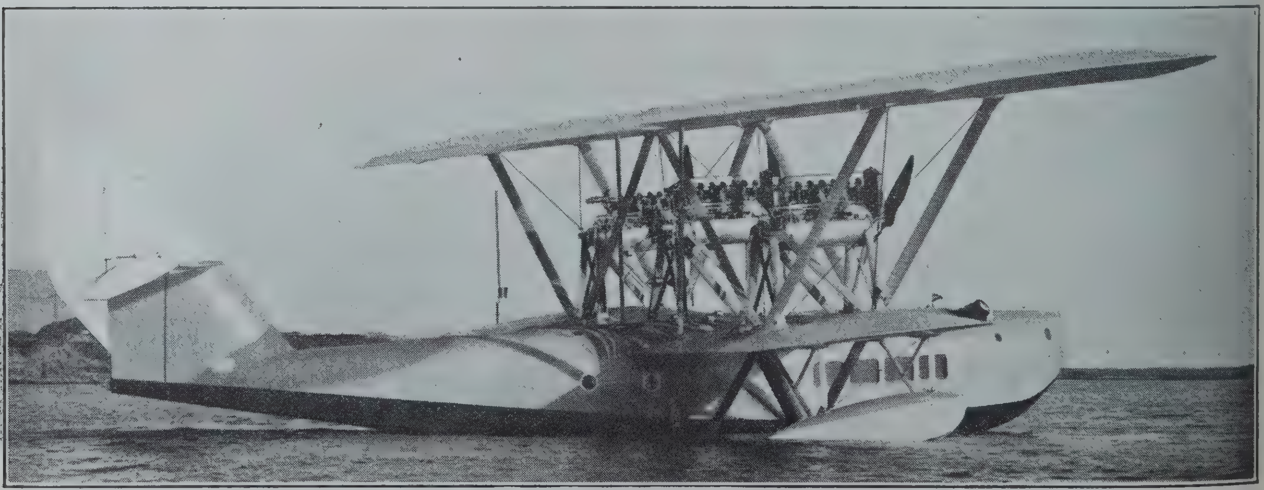
Fuselage.—Rectangular section, built on duralumin formers, corrugated duralumin sheet covered.

Tail Unit.—No data available.

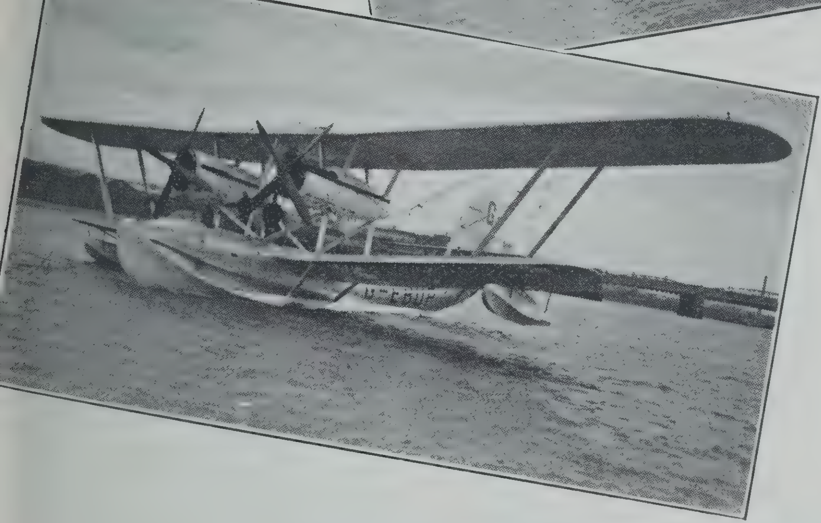
Undercarriage.—Normal Vee type, rubber cord sprung.

Power Plant.—Three 200 h.p. Isotta Fraschini " Semi-Asso " engines with frontal radiators. One petrol tank behind each engine (about 250 litres = 55 galls. each), with A.M. pump feed to carburettors.

Accommodation.—Open cockpit behind central engine for crew of two, with W.T. installation. Cabin for ten passengers behind.



The Cant 22 Seaplane.



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and crew of three.
(Bristol "Jupiter" Engines.)
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"SINGAPORE"
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(Rolls - Royce "Condor" Engines.)

SHORT

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FLYING BOATS.

SHORT BROS. (Rochester & Bedford), LTD., ROCHESTER.
Telephone—Chatham 2261.

DIMENSIONS.—Span 21 m. (67 ft. 10 in.), Length 14.0 m. (45 ft. 11 in.), Height 4.8 m. (15 ft. 10 in.), Wing area 91.6 sq. m. (985 sq. ft.).

WEIGHTS AND LOADINGS.—Weight empty 2,775 kg. (6,105 lbs.), Crew 200 kg. (440 lbs.), Wireless and instruments 100 kg. (220 lbs.), Fuel and oil 600 kg. (1,320 lbs.), Pay load 900 kg. (1,980 lbs.), Weight loaded 4,575 kg. (10,065 lbs.), Wing loading 50 kg./sq. m. (109 lbs./sq. ft.), Power loading 6.1 kg./h.p. (14.2 lbs./h.p.).

PERFORMANCE.—Maximum speed 200 km.h. (124 m.p.h.), Minimum speed 95 km.h. (59 m.p.h.), Ceiling 5,000 m. (16,400 ft.), Guaranteed range at 140 km.h. (87 m.p.h.) 1,000 km. (621 miles).

The Cant 27.

MADE BY CANTIERE NAVALE TRIESTINO, Monfalcone, Trieste. Passenger flying-boat.

WINGS.—Strut braced (Warren truss) biplane, lower wing smaller in chord and span than top. Inset narrow chord ailerons on top only. All metal (presumably light alloy) construction.

HULL.—Nearly rectangular section with slight Vee on bottom and rounded corners on top. Single step well behind C.G. All of light alloy. Two stepped wing tip floats under lower wing.

TAIL UNIT.—Normal monoplane type. Tail plane well clear of water on fin and strut braced below to hull. Horn-balanced rudder, plain elevators.

POWER PLANT.—One Isotta-Fraschini "Asso" 500 h.p. engine in nacelle below top centre section. Fuel tanks in hull below engine.

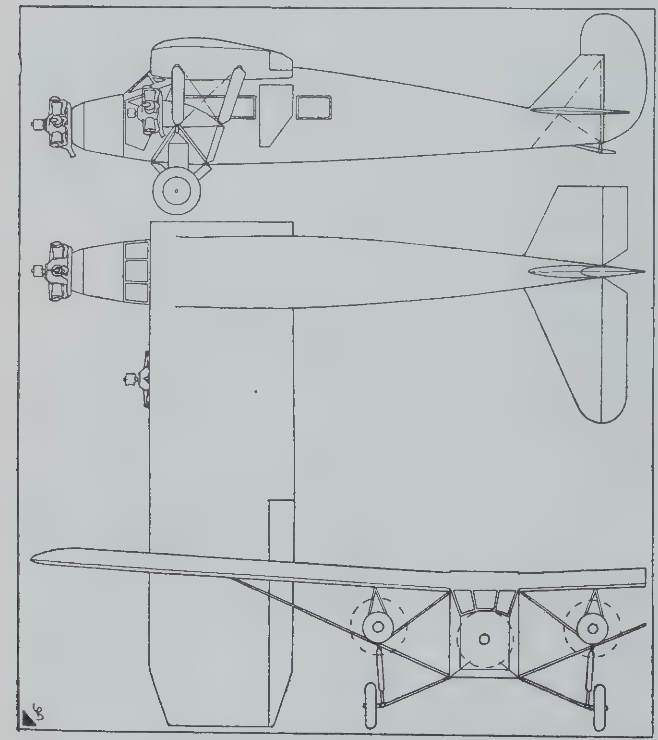
ACCOMMODATION.—Mooring cockpit in bows of hull, followed by cabin with accommodation for six seats. Side-by-side dual control seats for crew behind wings.

DIMENSIONS.—Span 19.0 m. (62 ft. 4 in.), Length 11.55 m. (38 ft. 10 in.), Height 4.20 m. (13 ft. 9 in.), Wing area 64.5 sq. m. (690 sq. ft.).

WEIGHTS AND LOADINGS.—Weight empty 2,000 kg. (4,400 lbs.), Fully loaded 3,300 kg. (7,260 lbs.), Wing loading 51 kg./sq. m. (10.5 lbs./sq. ft.), Power loading 6.6 kg./h.p. (14.5 lbs./h.p.).

PERFORMANCE.—Maximum speed 200 km.h. (124 m.p.h.), Minimum speed 100 km.h. (62 m.p.h.), Range 800 km. (500 miles) at 170 km.h. (105 m.p.h.).

The Caproni 97.



MADE BY LA SOCIETA PER LO SVILUPPO DELL'AVIAZIONE IN ITALIA, Milan. General utility cabin monoplane.

WINGS.—High wing monoplane, strut braced, uniform in chord and section except for rounding at tips. Constructed of steel tubing, not welded, and fabric covered. Large unbalanced ailerons.

FUSELAGE.—Rectangular section, steel tube framing, not welded.

UNDERCARRIAGE.—Split-axle type with vertical telescopic legs attached to front wing spar bracing strut. One half axle and one thrust tube hinged to lower fuselage longeron on each side.

TAIL UNIT.—Normal monoplane type. Tail-plane adjustable in the air. Horn-balanced rudder.

POWER PLANT.—Machine may be fitted with either one, two or three engines. The normal civil type has three air-cooled radial engines of 100-130 h.p. (Armstrong Siddeley Mongoose in illustration). Alternatively two radial engines of 200 h.p. (Lynx, Titan, Whirlwind or the like) or one 420 h.p. (Jupiter) may be fitted. Wing engines mounted on nacelles supported from wing struts vertically over undercarriage legs. Fuel tanks in wings giving gravity feed.

ACCOMMODATION.—Pilot in the usual enclosed cockpit in line with leading edge of wing. Civil type has cabin for six, lavatory and baggage space behind. The twin-engined versions may be equipped for reconnaissance or light bombing purposes, in which case an observer is apparently placed in the nose of the fuselage and a back gun position is arranged behind the wing.

DIMENSIONS.—Span 16.0 m. (52 ft. 6 in.), Length 10.85 m. (36 ft. 7 in.), Height 3.5 m. (11 ft. 6 in.), Wing area 40 sq. m. (429 sq. ft.).

WEIGHTS AND LOADINGS.—(Three-engined civil type): Weight empty 1,200 kg. (2,640 lbs.), Fuel and oil 400 kg. (880 lbs.), Load, including pilot, 600 kg. (1,320 lbs.), Weight loaded 2,200 kg. (4,840 lbs.), Wing loading 55 kg./sq. m. (11.2 lbs./sq. ft.), Power loading 7.0 kg./h.p. (15.4 lbs./h.p.).

PERFORMANCE.—Maximum speed 195 km.h. (121 m.p.h.), Minimum speed 99 km.h. (62 m.p.h.), Service ceiling 5,000 m. (16,400 ft.).

The Focke-Wulf "Möwe" Type A.17.

MADE BY THE FOCKE-WULF FLUGZEUGBAU A.G., Bremen. Nine passenger commercial machine, ordered by the Luft Hansa A.G.

WINGS.—High wing cantilever monoplane. Wing tapers in chord and thickness to tip. Ailerons on skewed hinge line with increasing chord towards wing tip. Box spars, three-ply ribs and three-ply covering.

FUSELAGE.—Rectangular section, of welded steel tube, wire braced. Cabin section covered in three-ply, rest in fabric.

TAIL UNIT.—Normal monoplane type, without external bracing, except for a pair of struts to tail-plane rear spar from bottom of fuselage. Steel tube framing, fabric covered.

UNDERCARRIAGE.—Split-axle type. Axles hinged to lower edges of fuselage and supported by a thrust tube also hinged to fuselage. A vertical strut runs from axle end to a slide carried in the nose of the wing from the front spar. Rubber shock absorbers fitted at this slide.

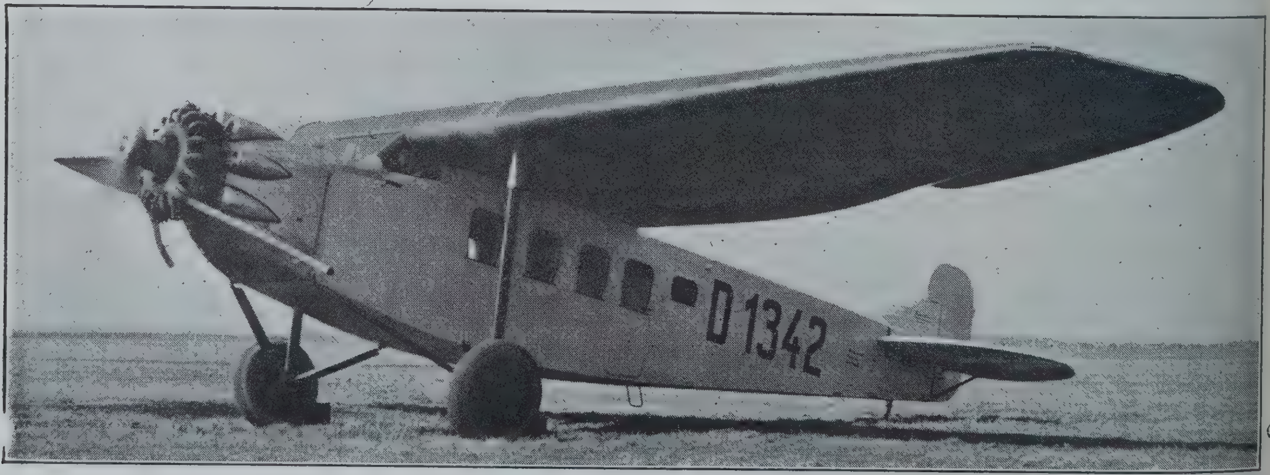
POWER PLANT.—One Jupiter engine ungeared 420 h.p. (type A.17) or geared 480 h.p. (type A.17a). Fuel tanks (2) in leading edge of wing give gravity feed to carburettor. Oil tank in fuselage behind engine. Jupiter exhaust manifold and long exhaust pipe fitted.

ACCOMMODATION.—Side-by-side pilots' seats with dual control under leading edge of wing with windscreen running up to wing. One baggage compartment under floor of pilots' cockpit, and one mail compartment below pilots' seats. Cabin 3.5 m. x 1.5 m. x 1.8 m. high (11 ft. 6 in. x 5 ft. 3 in. x 5 ft. 11 in.) below wing. Lavatory and baggage room side-by-side behind cabin. Cabin seats 9 passengers in seven single and one double seat.

DIMENSIONS.—Span 20 m. (65 ft. 7 in.), Length 13 m. (42 ft. 8 in.), Height 4 m. (13 ft.), Wing area 62.5 sq. m. (674 sq. ft.).

WEIGHTS AND LOADINGS.—(Type 17a geared engine): Empty 2,450 kg. (5,390 lbs.), Fully loaded 4,000 kg. (8,800 lbs.), Wing loading 64 kg./sq. m. (13 lbs./sq. ft.), Power loading 8.3 kg./h.p. (18.3 lbs./h.p.).

PERFORMANCE.—(Type 17a geared engine): Maximum speed 198 km.h. (123 m.p.h.), Cruising speed 169 km.h. (109 m.p.h.), Climb to 1,00 m. (3,280 ft.) 6.6 mins., Ceiling 4,500 m. (14,800 ft.). Type 17 ungeared engine at 3,625 kg. (8,000 lbs.)): Maximum speed 169 km.h. (105 m.p.h.), Climb to 1,000 m. (3,280 ft.) 8.4 mins.



The Focke-Wulf Möwe (geared Jupiter engine).

BLACKPOOL AIR PAGEANT
JULY 6 & 7
4 *firsts*

The Inter-Club Members' Handicap Race (Final)
1st. Dr. Dixon (Newcastle Aero Club)
3rd. W. J. Brighton (Midland Aero Club)
INTER-CLUB RELAY (Final)
1st. Midland Aero Club.

Owner Pilots' Handicap Race (Final)
1st. Norman Jones
3rd. Flt. Lt. Soden
DAILY DISPATCH NOMINATION HANDICAP (Final)
1st. Miss O'Brien

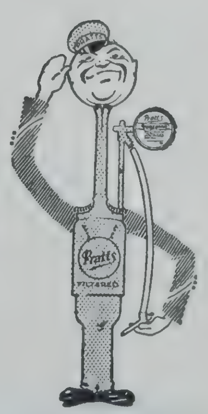
CASTLE BROMWICH AIR PAGEANT
JUNE 9
6 *more successes*

AIR LEAGUE CHALLENGE CUP
1st. Sqdn. Leader Probyn. 2nd. Norman Jones
SECOND SUCCESSIVE WIN 1927-1928
MIDLAND INTER-CLUB HANDICAP
1st. Newcastle Club 2nd. Norman Jones
MIDLAND OPEN CHALLENGE CUP
2nd. Nottingham Club 3rd. Sqdn. Leader Probyn

KING'S CUP AIR RACE
JULY 21
2nd. C. F. Uwins
Bristol 101
Jupiter Engine
4th. Capt. H. S. Broad
D. H. Moth
D. H. Gipsy Engine

All won on
Pratts

D.A. 216



THE HAT TRICK!

Winner for the third year in successio

The 1,100 mile Race round Britain f

THE KING'S

AGAI

Capt. W. L. Hope, pilot of the winning Moth machine in the 1928 King's Cup Race, congratulating Miss W. E. Spooner, the only lady in the race, who finished third on another Moth and secured the Siddeley Trophy Tour Challenge Cup.

Streets

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MOST ECONOMICAL

EASIEST TO LEARN TO FLY

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MOTH

FIRST - 1926
FIRST - 1927
FIRST - 1928

CUP

ON BY

MOTH

Pilot — **CAPT. W. L. HOPE**

The machine was a STANDARD G TYPE MOTH itted with an 85/100 h.p. DE HAVILLAND GIPSY ENGINE.

MOTHS were also placed:

3rd., 4th., 5th., 6th., 7th., 11th. and 12th.

What greater evidence can there be of the Moth's reputation as THE BEST LIGHT AEROPLANE IN THE WORLD"

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Telegrams: Havilland, Phone, Colindale. Telephone: Colindale 6160-6163

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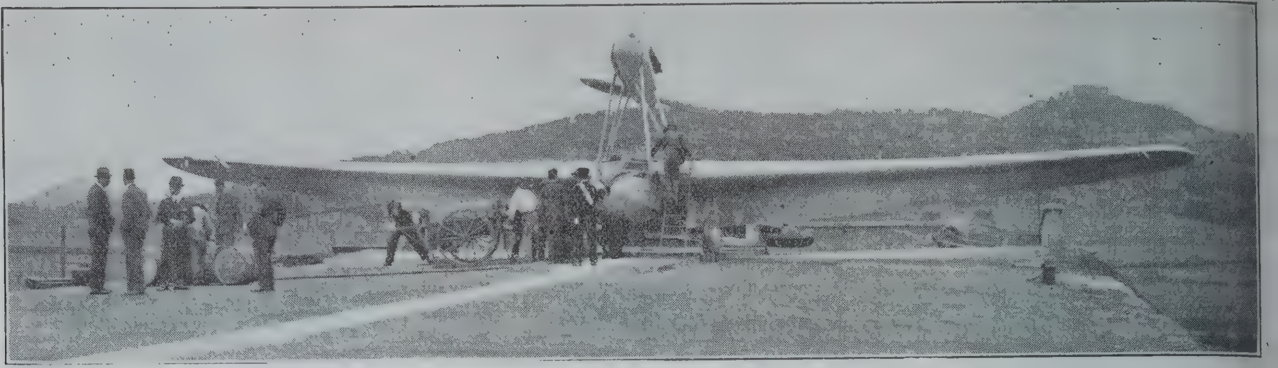


The Savoia-Marchetti 64 on the taking-off causeway at Montecellio, Rome.

The Savoia Marchetti 64.

Made by Societa Idrovolanti Alta-Italia, Milan. Designed and built expressly for an attack on the World's duration and distance records. On May 31 to June 2 the machine established a duration record of 58 hrs. 37 mins., and thereafter leaving Rome on July 3 it was flown non-stop to Touros, near Port Natal, on the Brazilian coast.

General Description.—This machine is a sort of land version of the famous S.55 seaplane of the same make. It has an enormous cantilever monoplane wing, with a small nacelle slung below it centrally for the crew. Two enormous tail booms are arranged on each side of the nacelle, the upper one springing from the upper wing surface, the lower one from the base of the undercarriage. A normal monoplane tail is fitted at the end of the booms. High above the wing, over the nacelle, is a power egg with one engine driving a pusher screw.

Wings.—Thick section monoplane tapering in chord and thickness to tips. Built in one piece, on three spars and plywood covered. Unbalanced ailerons.

Body.—The small central nacelle is oval in section, and is really part of the wing.

Tail Unit.—Normal monoplane type. Rudder horn-balanced.

Undercarriage.—Two axles hinge to the bottom of the central body are supported from the structure, which carries the lower of the tail booms on each side. Details of structure not available.

Power Plant.—One Fiat A-22 engine, 500 h.p., in streamline egg carried above wing by two pairs of N. struts. Petrol tanks (6,500 litres = 1,343 galls.) distributed along three-quarters of the wing span.

Accommodation.—Crew of two in central body which has dual control seats in line with the leading edge, and gives room for either pilot to lie down and rest.

Dimensions.—Span 21.5 m. (70 ft. 7 in.), Length 9.0 m. (28 ft. 7 in.), Height 3.7 m. (12 ft. 2 in.), Wing area 60 sq. m. (645 sq. ft.).

Weights and Loadings.—Weight empty 2,400 kg. (5,280 lbs.), Loaded weight 7,000 kg. (15,400 lbs.), Wing loading 116 kg./sq. m. (2 lbs./sq. ft.), Power loading 14 kg./h.p. (30.8 lbs./h.p.).

Performance.—Maximum speed at half load 235 km.h. (146 m.p.h.), Maximum range 11,500 km. (7,150 miles).

NEW ENGINES.

The Isotta-Fraschini "Asso 1,000."

Made by La Fabrica Automobili Isotta Fraschini, Turin.

Type.—18-cylinder three-row water-cooled.

Cylinders.—Separate steel barrels, welded-on separate steel jackets, tied together by light alloy head casting in one block for each row. Four valves per cylinder. Bore 150 m/m., Stroke 180 m/m., Compression 5.3.

Pistons.—Of aluminium alloy. Four rings above gudgeon-pin, which floats in piston and little-end.

Valve Gear.—Two overhead camshafts, one for inlet and one for exhaust, supported from cylinder head castings of each cylinder row. Valves controlled by rockers. Valve gear totally enclosed by bolted-on casing.

Connecting Rods.—Central master rod, two articulated side rods. All H section.

Crankshaft.—Six-throw type, on seven plain bearings with one double row ball thrust.

Crankcase.—Three piece of magnesium alloy castings. Upper section carries cylinders only. The central carries all crankshaft bearings, the lower is an oil retainer and cover.

Carburation.—Six vertical carburettors fitted between cylinder rows each feed three cylinders.

Lubrication.—Normal dry sump system, with one pressure and two scavenger pumps—gear type.

Starting Gear.—Distributor for gas or compressed air starting.

Auxiliary Drives.—All contained in a rear cover bolted to crankcase end. Magnetos driven by helical pinions on horizontal lay shafts above crankshaft. Water pump drive through vertical shaft below magnetos.

Airscrew Drive.—Direct.

Weight Dry.—803 kg. (1,767 lbs.) = 0.80 kg. (1.76 lbs.) per h.p.

Performance.—Normal output (guaranteed) 900 h.p. at 1,550 r.p.m., Maximum 1,000 h.p. at 1,700 r.p.m., Consumption .22 kg. (.484 lbs.) per hour fuel and .018 kg. (.04 lbs.) per h.p. hour oil.

The Walter Castor.

Made by J. Walter and Co., Praha-Jinonice, Czechoslovakia.

Type.—Air-cooled radial, seven cylinders.

Cylinders.—Bore 135 mm., Stroke 170 mm., Compression ratio 6 to 1. Forged steel barrels, with integral cooling fins. Aluminium alloy heads heat-treated, screwed on and locked by a screwing-up and clamping bolt on a split section of the head. Heads easily removable. Two bronze valve sets pressed into head.

Pistons.—Heat-treated aluminium alloy with domed heads.

Connecting Rods.—One "H" section master rod of nickel-chrome steel. Big-end consists of two large diameter rings forming roller bearing races, with space between rings for the six auxiliary rods. These are circular section (hollow).

Crankshaft.—Two-piece built-up type with counterbalance weights on both webs. Runs in two journal roller bearings and one thrust bearing, with an auxiliary roller bearing for the tail shaft.

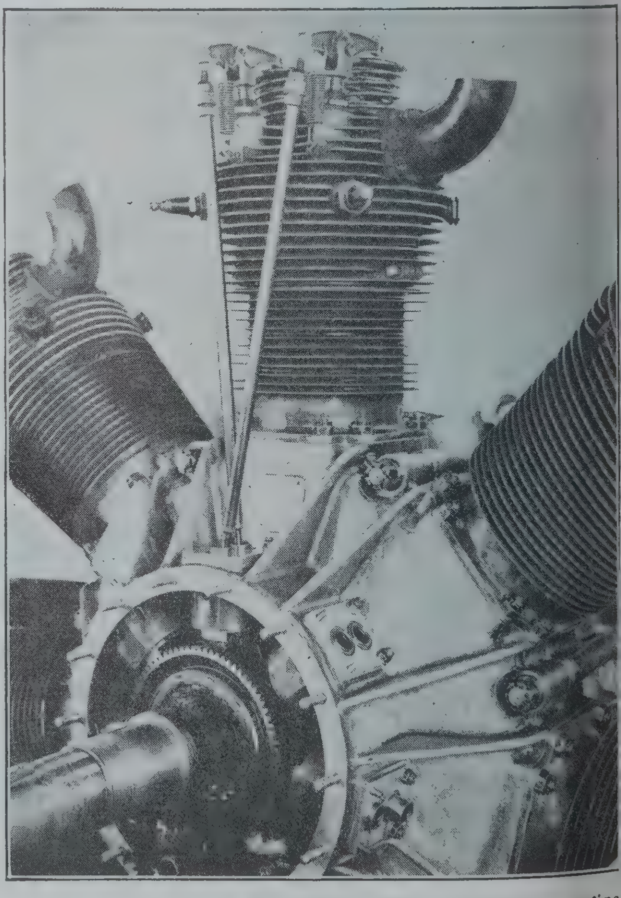
Crankcase.—In two parts, split on centre line of cylinders, bolted together by bolts between cylinders, with removable front and rear covers.

Valve Gear.—A two-row cam-disc, concentric with crankshaft, is carried in the front of the crankcase and is driven by spur gears through a lay-shaft. The valves are operated through push-rods the rocker-arms in the usual way. Triple concentric springs fitted to each valve, with a return spring on the push-rod end of the rocker-arms.

Induction System.—A twin Zenith type 60 D.C.J. carburettor supplies mixture to a chamber in the rear of the crankcase, containing a centrifugal fan driven direct from the crankshaft. Seven skewed induction pipes lead to inlet valves. Carburettor jacketed by warm oil from scavenger pump.

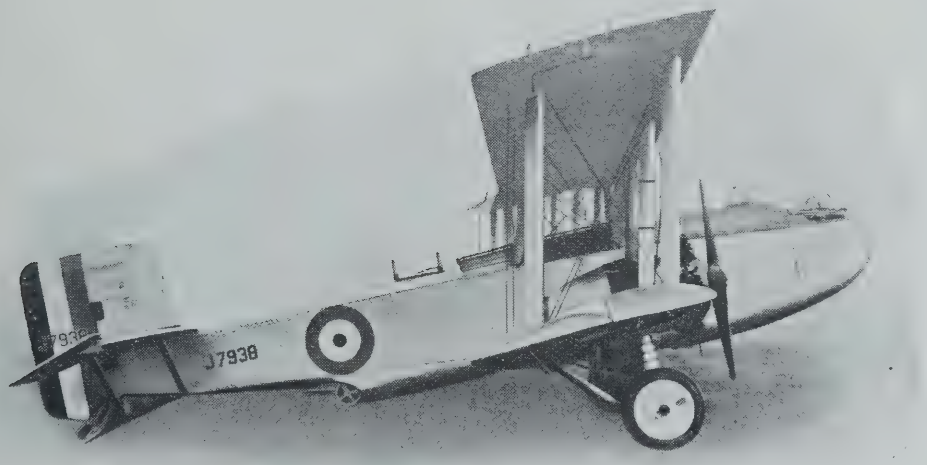
Ignition.—Two Bosch G.F.7 or two Scintilla G.N.7 magnetos are mounted on a transverse lay shaft below the crankshaft on brackets cast on the front crankcase cover and are driven through a bevel gear from the end of the cam-gear lay-shaft.

Lubricaton.—Normal dry-sump system. Two gear-pumps are mounted



Cylinder and valve gear of the Walter "Castor" engine

The Boulton & Paul "Partridge" single seater fighter of all-metal construction.



Boulton & Paul All-metal "Sidestrand" Day Bomber. Chosen recently after exhaustive tests as a Royal Air Force Service Machine.

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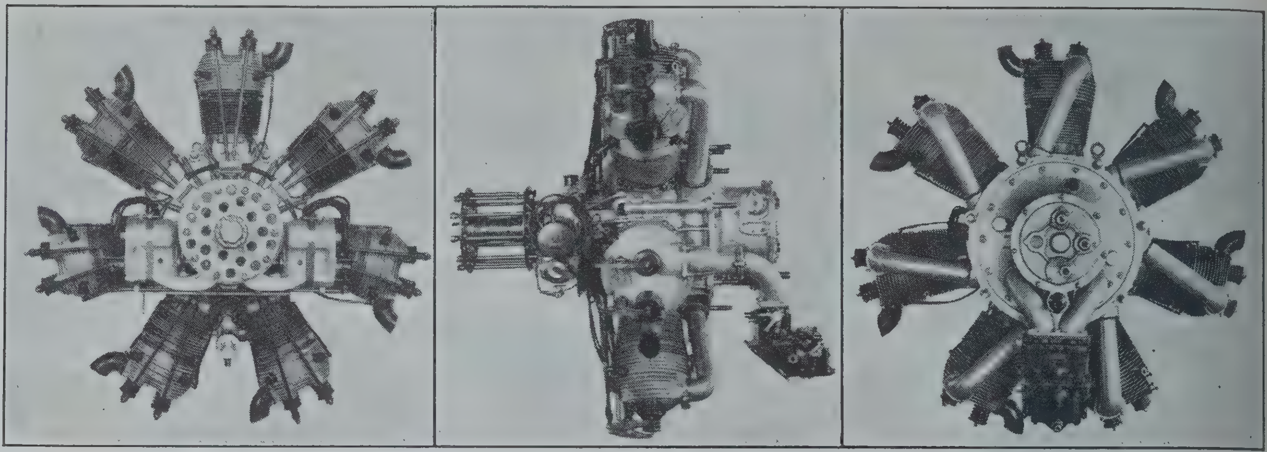


The Castor engine (240 h.p.) made by Walter and Co., Prague.

in the bottom of the rear half of crankcase and spur gear driven from the crankshaft.

Auxiliary Drives.—Gear drives for petrol pump, revolution indicator, gas-starter distributor, dynamo, etc., are provided in a compartment in the rear cover completely shut off from the rest of the crankcase.

Airscrew Drive.—Direct, through tapered seat and single key.

Weight.—248 kg. (546 lbs.).

Performance.—Normal output 240 h.p. at 1,750 r.p.m. Maximum permitted output 260 h.p. Fuel consumption of 50:50 per cent. benzol and petrol mixture 0.72 to 0.23 kg. (0.48 to 0.50 lbs.) per h.p. hour.

VICKERS BRAKES FOR AEROPLANES.

It has already been chronicled that the Vickers Vanguard, which is for the time being in the service of Imperial Airways Ltd., has been fitted with hydraulically-operated wheel brakes on the undercarriage and with a tail wheel in place of the tail skid.

This braking system has been found very effective. It permits of pulling up the Vanguard, which weighs 8¾ tons loaded, in some 80 to 100 yards without that scarifying effect on the aerodrome surface produced by the usual tail skid.

The system is exceedingly simple both in design and in operation. The pilot has a brake-lever which operates a small hydraulic pump. Two backward and forward movements of this lever take up all brake clearances, but do not put the brakes on to any noticeable extent. On the third stroke the brakes are applied in direct proportion to the movement of the lever. The pilot is able to "feel" the brakes through the lever, and ease off or pull on as is necessary, and he can instantly completely release them by pushing the lever forward and through a gate.

The Vickers brake system comprises a small oil reservoir, lever-operated pump with special valve (pilot's control), piping system and brake assembly mounted on axle together with special wheels.

The wheels are of Vickers-Palmer design with steel brake drum integral with wheel, the three brake shoes are of aluminium alloy castings Ferodo lined, and the whole brake is of the internal expanding type operated by a simple hydraulic cylinder and plunger. The three shoes are arranged to give a servo action, i.e., the small load applied to the first shoe is increased by the action of this shoe and applies a much greater load to the second shoe and so on. The ultimate braking force is thus many times the initial force.

Strong take-off springs are fitted and the shoes release instantly. The complete shoe assembly with operating motor, etc., is mounted on a disc carried on the axle and in that respect is very similar to the brakes of a car. The wheel is readily removed without in any way disturbing the brakes. The necessary construction to take up the brake torque reaction depends upon the type of undercarriage.

The brakes are completely enclosed and protected against sand, mud and water.

The piping system consists of solid drawn steel tubing of small diameter and is easily installed.

The pilot's control is in effect a lever operated hand pump with a special non-return valve on the delivery side. The pump normally sucks oil from the reservoir and forces it into the piping system under pressure. The number of strokes usually required to apply the brakes with maximum effect is three and oil pressures up to 1,000 lbs. per sq. inch can be obtained. The first two strokes serve to take up all clearances between the shoes and the drum, they also take up all spring and raise the pressure to approx. 200 lbs. per sq. inch.

This pressure will not give a very strong braking force and there is no difficulty in landing the machine under these conditions. The final pull will raise the pressure from 200 to say 800 lbs per sq. inch and give maximum braking effort.

When the pressure in the system exceeds 200 lbs. per sq. in. the special non-return valve is held permanently off its seat and the pilot's brake lever is in direct communication with the brake shoes. He can thus feel the brakes and control the amount of braking as in a car. Should it be necessary suddenly to reduce the braking effort to zero the lever is pushed forward and sideways through the gate (beyond the normal pumping action); this releases the pressure in the system and is instantaneous in action.

In a normal landing complete brake control is obtained during the third stroke.

The reservoir is kept filled with any thin non-freezing oil. All the working pistons are fitted with self-adjusting packings and the leakage of oil is nil.

Air release plugs are fitted at each brake motor, but it is only necessary to withdraw these on the initial filling or on refilling after having disconnected pipe line.

A pressure gauge mounted on dashboard gives indication of the pressure existing in the system.

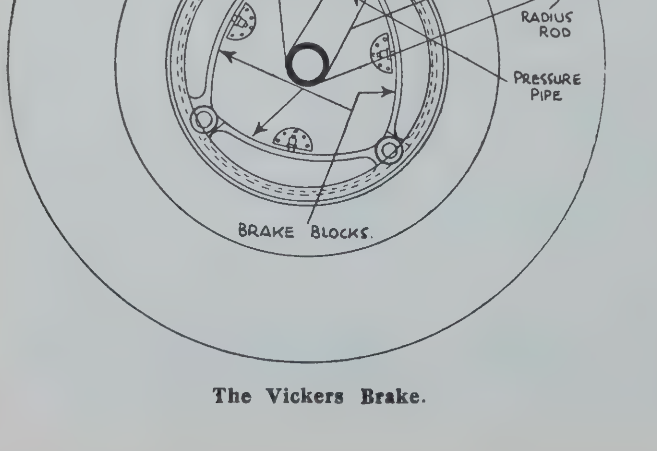
The whole installation is extremely light.

All parts are of simple construction and ample provision has been made for wear.

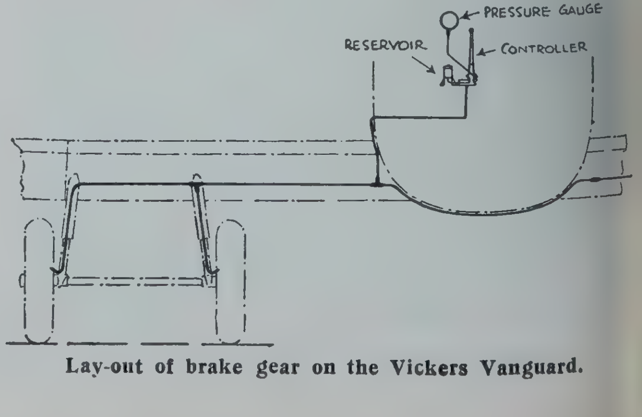
The brake linings are readily renewable.

An efficient set of brakes enables the tail skid with its attendant disadvantages to be abolished and its place taken by a sprung castor wheel.

This wheel is carried in a hollow steel fork, mounted on an oleo-pneumatic shock absorber with a travel of three inches. The wheel can swivel through 90 deg. on either side of normal position, and for handling the machine in sheds and the like a bar can be threaded through the hollow axle.



The Vickers Brake.



Lay-out of brake gear on the Vickers Vanguard.

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NEW TECHNICAL LITERATURE.

Aerodynamics.

"Aeronautical Research Papers." By J. H. Parkin. Bulletin No. 7, The University of Toronto. Published by The University of Toronto Press. 221 pp. No price stated.

The aerodynamic laboratory at the University of Toronto is the only establishment of this type in Canada, and in addition to serving as part of the normal equipment of the University carries out experimental work for the Air Board of Canada and for commercial aircraft constructing firms.

Aeronautical Research Paper No. 16 describes the new R.A.E. type 4-foot wind channel recently installed, gives an account of its instrumental equipment and the results of investigation of the air flow therein.

A.R.P. No. 17.—*"Research on Channel Wall Interference"* was published in the *Journal* of the R.Ae.S. in December, 1927, and was mentioned in abstract in Aeronautical Engineering, Jan. 25, 1928.

A.R.P. No. 18.—*"Pressure Distribution over U.S.A. 27 Aerofoil with Square Wing Tips"* gives very full data of pressure plottings on this wing section as a monoplane, and as an equal-winged biplane, gap equal to chord, for zero and 15° and 30° positive stagger.

A.R.P. No. 18. *"Pressure Distribution over Göttingen 387 Aerofoil with Square Tips"* gives similar data for another aerofoil section.

A.R.P. No. 19.—*"Biplane Investigation"* gives lift, drag, and C.P. coefficients for the complete biplane and for each of the component wings of a series of models all equal-winged with gap equal to chord. Three aerofoil sections were used—Airscrew 4, U.S.A. 27, and Göttingen 387—each at 0°, 15°, and 30° stagger.

This series of reports provide useful data for design purposes, more particularly as to the distribution of load for stressing purposes. They are concerned mostly with fairly thick wing sections and they show that in general biplane effects on sections of this type are not widely different from those which occur with the better known thin sections.

"Research on the Control of Aeroplanes." By Prof. B. Melvill Jones. Supplement to "Nature," May 12, 1928.

This is a report of a discourse given by Prof. Melvill Jones at the Royal Institution in February of this year, which well deserves to be read by all students of aeronautical engineering. In this lecture the author discusses in very general terms the history of the aeroplane control, and the divergent views of those two schools of thought, one of which believed in making the aeroplane controllable and leaving it to the pilot to keep it right side uppermost, and the other in making the aeroplane stable so that the pilot had merely to steer it, and he shows fairly convincingly that neither school of thought was entirely right or entirely wrong.

The problem of greatest importance in connection with aeroplane controls has always been that of control and/or stability at the stall. After the general consideration of the control v. stability question, Prof. Jones gives a very clear explanation of the dangerous characteristics of the stalled aeroplane, and of the reasons which cause it to become uncontrollable, illustrated by a number of records showing the actual motions of a stalled aeroplane when the controls are used in the normal way. The main value of this lecture lies in the author's well-known capacity for clear and easily-followed explanations of complicated phenomena.

"The Effect of the Sperry Messenger Fuselage on the Air Flow at the Propellor Plane." By F. E. Wick. Technical Note No. 274. The National Advisory Committee for Aeronautics, Washington.

This report gives the results of an exploration of the air flow in the plane of the airscrew made with the full-sized fuselage of a Sperry "Messenger" aeroplane mounted in the 20 ft. wind tunnel of the N.A.C.A. at Langley Field. The tests were made at a wind speed of 75 m.p.h.

The airscrew normally fitted to this aeroplane has a diameter of 78 inches. With the three-cylinder engine in place, but with airscrew removed, the air velocity level with the blade tip at the top position was approximately that of the free air-stream, but dropped to 90 per cent. of normal at about 17 in. radius and to 84 per cent. at 12 in. radius. Below the airscrew centre speed was still measurably below normal at 60 in. radius (below the landing wheels of the machine). This definitely marked reduction below the airscrew centre is caused by the drag of the undercarriage.

Exploration along a horizontal line showed reduction in air velocity inside a radius of 20 inches less than either of those found on a vertical line, but becoming intermediate between that observed above and below the airscrew centre for radii above 20 inches.

It is suggested that these variations in air flow are large enough appreciably to alter the airscrew characteristics, and that allowance for changes of this magnitude could with advantage be made in airscrew design.

"The Distribution of Loads between the Wings of a Biplane having Decalage." By R. M. Mock. Technical Note No. 269, The National Advisory Committee for Aeronautics, Washington.

In this note the author firstly calculates the aerodynamic characteristics of certain biplane combinations, starting from the measured characteristics of model monoplanes, and applying biplane corrections as deduced from the Vortex theory by Fuchs and Hopf. Thereafter actual biplane models were tested in the wind tunnel and the results of test and computation are compared.

There are marked divergences between computed and observed results, particularly in regard to the relative distribution of load between the two wings. The upper wing carries a smaller proportion of total load than the calculations indicate.

The discrepancies are ascribed to the incomplete representation in the calculations of the actual state of affairs. The aerofoils are represented as lifting lines at a fixed distance apart. Actually the gap between aerofoils decreases towards the trailing edge, there is an increased velocity in the gap from this cause which decreases the circulation and lift on the upper wing and increases both on the lower wing. Moreover, the theory assumes that the trailing vortices are concentrated at the wing tips, whereas they are actually distributed nearly elliptically along the span. By elaborating the mathematical treatment the author considers the discrepancies could be removed.

The discrepancies in question do not seriously affect the overall characteristics of complete biplane combinations to any very important extent.

The Aeronautical Research Committee.

R. & M. No. 1103.—*"The One-foot Wind Tunnel at The National Physical Laboratory; including Particulars of Calibration made with Pitot Tube and Vane Anemometer at Low Speeds." By L. F. G. Simmonds, M.A., A.R.C.Sc., and L. J. Jones.*

Description of a small wind tunnel built for testing anemometers and small measuring instruments, and of tests made to calibrate it for wind speed and regularity of flow.

R. & M. No. 1104.—*"On the Flow of Air Behind an Inclined Flat Plate of Infinite Span." By A. Fage, A.R.C.S., and F. C. Johansen, B.Sc. Price 1s. 3d. net.*

Account of a series of measurements of the periodic flow behind a flat plate to investigate the nature of the wake, the rate of shedding of vorticity from the edges of the plate, etc. The results show that a vortex street resembling that suggested by Von Karman is formed, that the spacing of the vortices in that street differs somewhat from that shown in Von Karman's theory, but that the measured drag closely approximates to that given by Von Karman's formulæ if the measured values of vorticity and of vortex spacing are used.

R. & M. No. 1105.—*"The Aerodynamics of a Simple Servo-Rudder System." By H. M. Garner, M.A., and Flt. Lt. C. E. W. Lockyer, R.A.F. Price 6d. net.*

An investigation based on aerofoil theory of the characteristics of the type of servo-rudder which consists of a narrow flap hinged to the trailing-edge of a rectangular rudder. This method of controlling a rudder will enable rudders of very large size to be controlled by small forces applied to the rudder bar. It is concluded from the investigation that the angle of servo-rudder required to hold the main rudder over to any given angle varies little with the relative size of the servo-rudder and that it is therefore always advantageous to keep the servo-rudder small. The conclusions require checking by test on models of such rudders.

R. & M. No. 1107.—*"Further Experiments on a Model of the 'Bantam' Aeroplane, with Special Reference to the 'Flat' Spin." By A. B. Irving, B.Sc., and A. S. Batson, B.Sc. Price 1s. 3d. net.*

Report of the results of wind tunnel tests on a model of a "Bantam" aeroplane at large angles of incidence (up to nearly 90°) and at various speeds of rotation. These show that the range of auto-rotation of this model extends from just below 20° to over 80° incidence. At certain incidences (50° to 80°) and at certain speeds of rotation the fin and rudder were found to tend to increase the rate of rotation. Removing wings and undercarriage had little effect on this reversal of the effect of fin and rudder and by removing successive sections of the tail plane it was shown that reversal was due to interference between tail plane and the fin and rudder. The fin and rudder on the body without tail plane gave nearly the same results as fin and rudder alone without body.

At 60° incidence and moderate speeds of rotation the rudder control on the complete model is about half as great as the effect of fin and rudder alone. At higher speeds of rotation the rudder control on the complete model becomes greater than the effect of fin and rudder alone.

The pitching moment tending to reduce incidence on the complete model increases steadily with increase of incidence up to 90° except between 42° and 50°, where the curve becomes nearly flat. The pitching moment due to the tail plane alone falls off slightly at above 20° incidence, and beyond 32° incidence the total pitching moment for the complete machine is increasingly greater than that for tail plane alone.

The effect of rolling on the pitching moment of the complete machine at 44°, 60° and 90° incidence and with elevators at plus or minus 20° is an increase in moment with rotation. The effect with tail plane removed was small at incidences of 44° and 60°, but at 90° there was an increase in pitching moment rather less than that for the complete machine. Rotation was found to increase the drag of the model in all conditions at a rate increasing with incidence and with rate of rotation.

R. & M. No. 1108.—*"The Rotating Wing in Aircraft." By H. E. Wimperis, M.A., F.R.Ae.S. Price 6d. net.*

Reprint of a paper read before Section G of the British Association at Oxford, August, 1926. Contains an elementary survey of the theory of the rotating wing as applied particularly to the la Cierva Autogiro.

R. & M. No. 1109.—*"The High-Duty Compression Ignition Engine." By D. R. Pye, M.A. Price 9d. net.*

Reprint of a paper read before Section G of the British Association at Oxford, August, 1926. A general survey of the results of experimental work on compression ignition engines at the R.A.E. and at the Ricardo Laboratory.

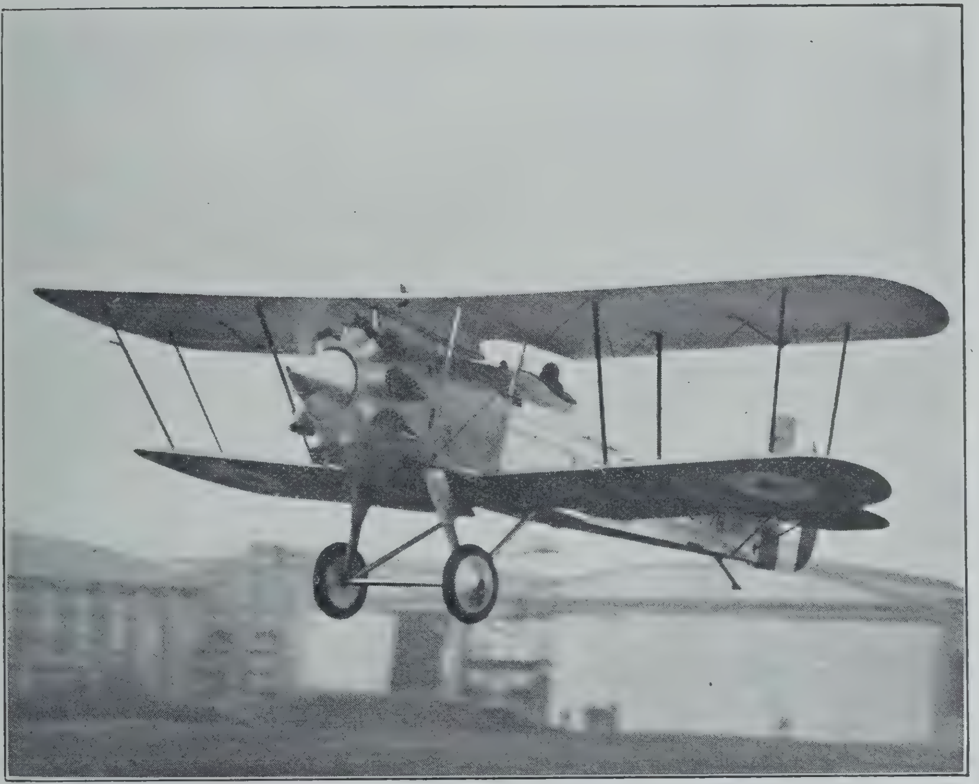
R. & M. No. 1110.—*"Note on Some Fatigue and Density Tests made of Aluminium Aggregate." By H. J. Gough, M.B.E., B.Sc., Ph.D. Price 4d. net.*

Record of experiments made on normal polycrystalline specimens of aluminium for comparison with tests made on specimens in the form of single crystals. The material was tested both "as rolled" and annealed. In both conditions markedly higher ranges of fatigue stress were shown by the polycrystalline material, a fact which is attributed partly to the strengthening effect of crystal boundaries which inhibit slip as between crystals and partly to the random orientation of crystal axes. The polycrystalline material show a small but definite decrease in density after alternate stressing. No such change of density could be detected in the single crystal specimens.

R. & M. No. 1111.—*"A General Theory of the Autogiro." By H. G. Glauert, M.A. Price 1s. 6d. net.*

A mathematical investigation of the characteristics of the Cierva Autogiro on the basis of aerofoil theory. Certain simplifying assumptions are made—i.e., that the angles of incidence of the blade elements

HAWKER AIRCRAFT



"Aeroplane" Photograph.

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are always small, and that only the primary oscillation of the blades need be taken into account. It is also assumed that the induced velocity of the trailing vortex system resembles that of an aerofoil rather than that of an airscrew.

An alternative method of analysis of the Autogiro by an estimation of the energy losses is developed in an appendix and leads to results in marked divergence in certain important details from those reached in the body of the report.

The conclusion is reached that the L/D of an Autogiro is at best 6 to 8, and that as the maximum speed is increased the "stalling" speed must increase too.

R. & M. No. 1112.—*"On the Influence of Supercharging on the Performance of Aeroplanes." By R. McKinnon Wood, M.B.E., B.A., A.M.I.C.E., F.R.Ae.S. Price 9d. net.*

A general discussion on simple theoretical grounds of the effect of supercharging engines on the performance of aeroplanes. Three cases—(a) fixed airscrew, (b) variable pitch airscrew, and (c) variable speed gear and fixed airscrew—are considered.

The result of supercharging is a loss of performance at low heights, unless ground boosting is employed, and a great improvement in performance at great heights. A variable pitch airscrew is necessary to get the full advantage of supercharging under all conditions, but such a screw has little value if performance at a definite operating height only without regard to time taken to reach that height is important.

The variable speed gear cannot give such good all round performance as the variable pitch airscrew.

R. & M. No. 1113.—*"Closed Vessel Explosions of Carbon Monoxide, Oxygen, and Nitrogen Mixture." By R. W. Fenning, M.B.E., B.Sc., D.I.C. Price 9d. net.*

Record of the results of a series of experiments from which it is hoped to determine the dissociation of CO_2 and to estimate the specific heat of that gas at high temperatures.

R. & M. No. 1116.—*"Wind Tunnel and Dropping Tests of Autogyro Models." By L. E. Caygill, A.M.I.M.E., and A. E. Woodward Nutt, B.A. Price 6d. net.*

Records results of tests on two four-bladed models of Autogyros, one of 2.2 ft. and the other of 10 ft. diameter, devised to obtain further information as to the behaviour of this type of machine in vertical descent. Tests of the smaller model were made in the 7 ft. wind tunnel, and both models were tested by dropping them with wings rotating from a height of 90 ft. and timing their descent.

From these tests the coefficient of normal force in vertical descent was found to be 0.67 to 0.71 for the small model in the tunnel, about 0.6 for the 2.2 ft. model and 0.58 to 0.71 for the large model in free flight. These figures do not bear out the results suggested by full scale demonstration flights.

R. & M. No. 1117.—*"Scale Effect on three Aerofoils at Low Values of LV, R.A.F. 32, Göttingen 433, and Göttingen 410 with 2 per cent. Centre Line Camber." By F. B. Bradfield. Price 6d. net.*

Tests made to discover the reason for very large drags found when testing 8-inch chord model wings carrying 1-inch chord pilot planes. It was found that the drag of the 1-inch chord models increased very rapidly as Vl decreased, and at the same time the angle of no lift decreased and the angle of maximum lift increased and in one case all that is left of the stall is a change in the slope of the lift curve, the maximum lift occurring in the neighbourhood of 45°.

R. & M. No. 1118.—*"A Survey of Longitudinal Stability below the Stall, with an Abstract for Designers' Use. By S. B. Gates, M.A. Price 1s. 3d. net.*

Using a system of units suggested by Glauert in R. and M. No. 1093, wherein resistance derivatives are expressed as non-dimensional units, the author develops a simple method of assessing the dynamic longitudinal stability of an aeroplane over the range wherein the lift curve is sensibly a straight-line.

The characteristics of any given aeroplane are expressed by the fundamental co-ordinates, X which depends only on C.G. position relative to both tail plane and wing and the radius of gyration of the aeroplane about a lateral axis, and Y which depends only on the relative areas of tail and wing, the radius of gyration and the slope of the tail-plane lift curve.

By plotting the point having X and Y as its co-ordinates on a series of charts, the stability, or otherwise of the particular machine is determined by the position of this characteristic point in relation to a series of boundary curves. Each of these boundary curves corresponds to a particular value of one of four parameters dependent on the characteristics of the particular machine.

In the abstract for designers' use methods of computing all the quantities involved and of using the charts are described without reference to the theory involved. The process thus presented seems to be if anything simpler than the method usually adopted for assessing static longitudinal stability and could be followed by anyone capable of making the more usual computations. The method depends in practice on assumptions of uncertain accuracy particularly as to the effect of slipstream on tail just as do the computations of static stability, but it certainly deserves a trial by all progressive designers. Even if the accuracy of prediction possible is not very high a useful guide to the avoidance of dangerous instability should be given.

R. & M. No. 1128.—*"Motoring Losses in Internal Combustion Engines." By H. Moss, D.Sc., A.R.C.S., D.I.C. Price 6d. net.*

Records experiments made to investigate the cause for the marked difference which has at times been found between the friction losses in an I.C. engine when running under power and when being driven by a motor. Ricardo has already shown that an increase of 45 per cent. in piston friction may be caused by carbonisation of oil when running under power. In these tests measurements of total losses in a motored engine were made with intake at a range of pressure from normal to twice normal. Pumping losses were measured by the R.A.E. electrical indicator, and deducted from total losses to give frictional losses. The results show a marked increase in friction losses with increasing pressure presumably due to increased side thrust on piston. This is sufficient with the effect discovered by Ricar to explain the observed increased friction in an engine under pow

(*Note.*—The publications of the Aeronautical Research Committee c be supplied by THE AEROPLANE Book Department, 14, Bream's Buildin London, E.C.4.)

Miscellaneous.

"The Medical Examination of Civilian Aviators." C.A. Publication 2nd Edition. The Air Ministry, March, 1928. London: H. Stationery Office. Price 1s. net.

An official foreword of this work says: "The following explanati of the methods and standards now in use in Great Britain for t examination of applicants for licences as civilian aviators is pu lished for the information of all concerned."

To this it seems necessary only to add that the first and small section of the book contains a statement of the regulations whi govern the medical requirement for civil pilots' licences, and w serve to inform the would-be applicant as to the standard of physic fitness required of him. The major section, however, is rather guide to the medical man who may have to make examination of su applicants.

Journals.

"Journal of The Royal Aeronautical Society," No. 210, Vol. XXX June, 1928. Price 3s. 6d. net.

Contents:—Official Notices of the Society; Correspondence; Repo of Papers on (1) Modern Developments in Aircraft Instruments, Major C. J. Stewart, O.B.E., M.I.Mech.E., F.R.Ae.S., M.I.A.E.; Experiments on Model Airscrews at High Tip Speeds, by G. Douglas, M.C., D.Sc.

"Notiziario Technico di Aeronautica," No. 5, May, 1928. Publish by the Italian State Library, Rome. Price 25 lire net.

Contents:—(1) *Il decollo degli apparechi sovraccaricati* (The Take- of Overloaded Aeroplanes), by Capt. Cosci Domenico; (2) *Diagram dinamometrici dello spiegamamento dei paracadute* (Diagrams of t Forces on a Parachute during Opening), by Major Aldo Guglielme and Ing. A. R. Tripodi; (3) Abstracts from various technical journa throughout the World.

"The S.A.E. Journal," Vol. XXII, No. 5, May, 1928. Published the Society of Automotive Engineers, New York. Price $1 n

Contents:—Reports of discussions on papers on (1) National A ways Engineering, by F. C. Hinsburg; (2) The Control of Aircra Design, by E. W. Stedman; (3) Technical Problems of Airworthine Control, by Clarence M. Young; together with many items deali primarily with the technique of the motor-car.

BOOK REVIEWS.

Modern Aero Engines.

"Neuzeitliche Flugmotoren." By Dr. Ing. Hans Katz. Vol. 27 the Bibliothek für Luftschiffart und Flugtechnik. Published Richard Carl Schmidt & Co., Berlin. 386 pp. 9 inches x 6 inch plus 3 loose folders. 390 figures. Price 25 Reichmarks net.

This is a book purely descriptive of the aero-engine as it exis to-day, and in its own sphere is an excellent production, which shou be valuable to all who have to deal with such engines as a book reference.

The first two chapters, totalling 185 pages, give general descriptio of water- and air-cooled engines respectively. The salient chara teristics of the modern products of all the better known Germa British, American, French, and Italian engines are given and a surprisingly copiously illustrated. There follows a section on t design of air-cooled cylinders rather summary in treatment and t remaining sections describe specific types of reduction gears, igniti apparatus, carburettors and fuel pumps, superchargers and starti gears.

Appended to the book are four large tables giving very comple data for over 100 different engines, including every make and ty that one can think of which has any real interest at the present tim

Considering how comprehensive is the range of this book and ho small its bulk there are surprisingly few notable omissions to discovered in it. The section on superchargers is probably most op to criticism, presumably because little or no work on this accesso has been done in Germany since the War, and relatively little h been published concerning supercharger developments in oth countries since.

Curiously enough the author has made little or no use of the i formation which has been published by the American Nation Advisory Committee for Aeronautics on this subject, but he has draw largely on Mr. Fedden's paper on superchargers, read to the Instit tion of Automobile Engineers in 1927.

Elementary Physics.

"An Introduction to Physical Science." By Ivor B. Hart, O.B. Ph.D., B.Sc. Second Edition. Published by Humphrey Milford the Oxford University Press. 306 pp. 4¾ inches x 7⅜ inche Price 4s. net.

This is the second edition of an eminently sound elementary bo of instruction in physical science, written by one of the senior membe of the Royal Air Force Educational Service. The book is primari intended as a class-book and the course of instruction given there requires a certain amount of practical experiment and the provision some laboratory equipment. As a guide to the science master of a school or similar institution the book is an excellent one, and it m also be recommended to those unable to attend any form of cla who desire to acquire a sound idea of the general principles of physic

The lack of laboratory equipment and consequent inability to car out many of the experiments described need not prevent any intellige reader from acquiring quite a sound general knowledge of the su jects covered.

The book is divided into eight sections, dealing with the measur ment of lengths, areas and volumes, hydrostatics, the measureme of time, forces and their effects, heat, sound, light and electrici and magnetism.

THE ROYAL AIR FORCE.

The London Gazette.

July 17.

ENERAL DUTIES BRANCH.—N. W. A. Cullum is granted a S.S. comn. Plt. Off. on probation with effect from July 6 and with seniority of ne 29. The following Plt. Offs. are promoted to the rank of Flg. :—J. L. Adams (April 1); J. Clarke, J. C. A. Johnson, J. Norwood, J. Arbuthnot, G. F. Whistondale (June 11). The following Plt. Offs. probation are confirmed in rank :—G. E. E. Singleton, A. P. ler, G. R. Jackson, F. W. Murison, H. Box, K. F. Jones, R. W. M. rk, V. S. W. Smyth, I. B. Beesley, A. R. Combe, J. R. Mathews, K. Horner, H. J. Cross, U. H. Mignon, O. G. Williams, P. W. M. ight, C. E. V. L'E. Feasey, M. G. Sedorski, D. J. Hughes-Morgan, T. K. Bullmore (Sec. Lt., R.A., T.A.) (July 18); L. M. Woolveridge ly 20).

he following Flt. Lts. are seconded for duty with the Estonian vernment (July 5) :—A. C. Collier (and is granted the acting rank Sq. Ldr. whilst so seconded), G. C. Gardiner, D.F.C., O. E. rsley.

lt. Lt. R. Pyne, D.F.C., ceases to be seconded for service as Aide-Camp to the Governor of the United Provinces (May 16).

t. Cdr. A. N. Grey, R.N., Flg. Off., R.A.F., relinquishes his temp. nn. on return to Naval duty (July 15). The following Lts., R.N., . Offs., R.A.F., cease to be attached to the R.A.F. on return to val duty :—F. M. R. Stephenson (July 10); H. L. St. J. Fancourt, B. Heath (July 12).

lg. Off. N. Vintcent is removed from the half-pay list, scale B, being granted leave without pay (June 11); Flg. Off. N. Liddall is ced on the retired list on account of ill-health (July 13). The owing Flg. Offs. are transferred to the Reserve, Class A :— I. Riley, A.F.C. (July 3); H. L. R. Gough, T. R. Wheatley (July ; P. R. Stroud (July 16). Flg. Off. J. W. New is transferred to the serve, Class C (July 14).

he following officers resign their S.S. comns. :—Plt. Off. G. R. T. rke (July 14); Plt. Off. on probation J. O. C. Huggett (July 16). e S.S. comns. of the following Plt. Offs. on probation are terminated cessation of duty :—D. Timms (July 14); E. E. Carter (July 16).

IEDICAL BRANCH.—The following Flg. Offs. are promoted to the k of Flt. Lt. (July 13) :—J. O. Priestley, D.M.R.E., J. Twohill, M.B.

ESERVE OF AIR FORCE OFFICERS.—GENERAL DUTIES BRANCH.—The fol-ving are granted comns. as Plt. Offs. on probation :—CLASS A.A. .—J. G. Naz. E. W. Seymour-Hosley (June 20); J. L. Browne, P. F. gland, W. W. L. Jones, G. H. Newberry (July 2); G. Nelson ly 3). SPECIAL RESERVE.—J. B R. Brooke (June 25). Plt. Off. on bation G. E. Langdon is confirmed in rank (July 11); Flg. Off. S. Eaton is transferred from Class C. to Class A (June 13); Flg. . H. W. Pierce is transferred from Class A to Class C (July 12); . Off. M. J. Berlyn is transferred from Class AA to Class C ar. 25); Sq. Ldr. R. Hutton relinquishes his comn. on completion service (May 16).

TORES BRANCH.—Flt. Lt. F. R. Berresford relinquishes his comn. on npletion of service (May 28).

IEDICAL BRANCH.—The following Flt. Lts. relinquish their comns. on npletion of service :—T. A. G. Hudson (July 4); C. H. B. Thompson ly 13).

Appointments.

Week ending July 23.

ENERAL DUTIES BRANCH.—Flight Lieutenants L. C. Wynne-Tyson, to me Aircraft Depot, Henlow, 29/6. F. L. Pearce, to No. 440 Flight, 7.

lying Officers L. T. Pankhurst, to Home Aircraft Depot, Henlow, 6. J. M. Fearon, to No. 2 F.T.S., Digby, 14/7.

ilot Officers A. G. C. Somerhough, to No. 440 Flight, 13/7. H. Box, No. 7 Sqdn., Worthy Down, 26/7. F. T. K. Bullmore, to R.A.F. pot, Uxbridge, 18/6. G. Fachiri, to No. 45 Sqdn., Middle East, 2/7. E. V. L'E. Feasey, to No. 55 Sqdn., 'Iraq, 25/5. A. P. Miller, S. W. Smyth, to R.A.F. Depot, Uxbridge, 26/6. The undermentioned . Offs. are posted to No. 2 F.T.S., Digby, with effect, 14/7. J. R. ling, T. F. Balfour, R. L. Bennet, A. K. H. Binley, J. H. Brown, R. J. Clare Hunt, J. C. L. Claxton, A. G. Cole, R. H. Coupe, N W. A. Cullum, S. A. Davis, F. C. Edney Hayter, R. C. W. Ellison, W. C. Garrett-Petts, D. L. Iremonger, J. M. Israel, E. G. James, G. W. J. Jarrett, G. R. O'C. Lempriere, C. N. McLoughlin, J. G. Reiss, J. D. Robertson, H. E. Sales, I. M. Smith, R. H. Surrier, W. G. Stevenson, K. G. Vandyk, P. C. Wilkin, and F. K. Wood.

Vacancies for Short Service Officers.

The Air Ministry announces that about 120 officers will be required by the Royal Air Force for flying duties during the next few months. Applications are accordingly invited from suitable candidates, who must be between the ages of 18 and 25, well-educated and of good eyesight and physique.

Short service commissions are granted for five years' service on the active list and four in the reserve. A small number of commissions may be extended to ten years on the active list and four in the reserve.

Application forms and full details of the conditions of service can be obtained from the Secretary, Air Ministry, Kingsway, London, W.C.2.

Auxiliary Air Force Annual Training.

The annual training of the Squadrons of the Auxiliary Air Force will be held as follows :—

No. 600 (City of London) Sqdn., Aug. 5 to Aug. 19, at Lympne.

No. 601 (County of London) Sqdn., Aug. 5 to Aug. 19, at Lympne.

No. 602 (City of Glasgow) Sqdn., July 13 to July 27, at Leuchars.

No. 603 (City of Edinburgh) Sqdn., July 21 to Aug. 4, at Leuchars.

No. 605 (County of Warwick) Sqdn., Aug. 5 to Aug. 19, at Manston.

H.M.S. Furious.

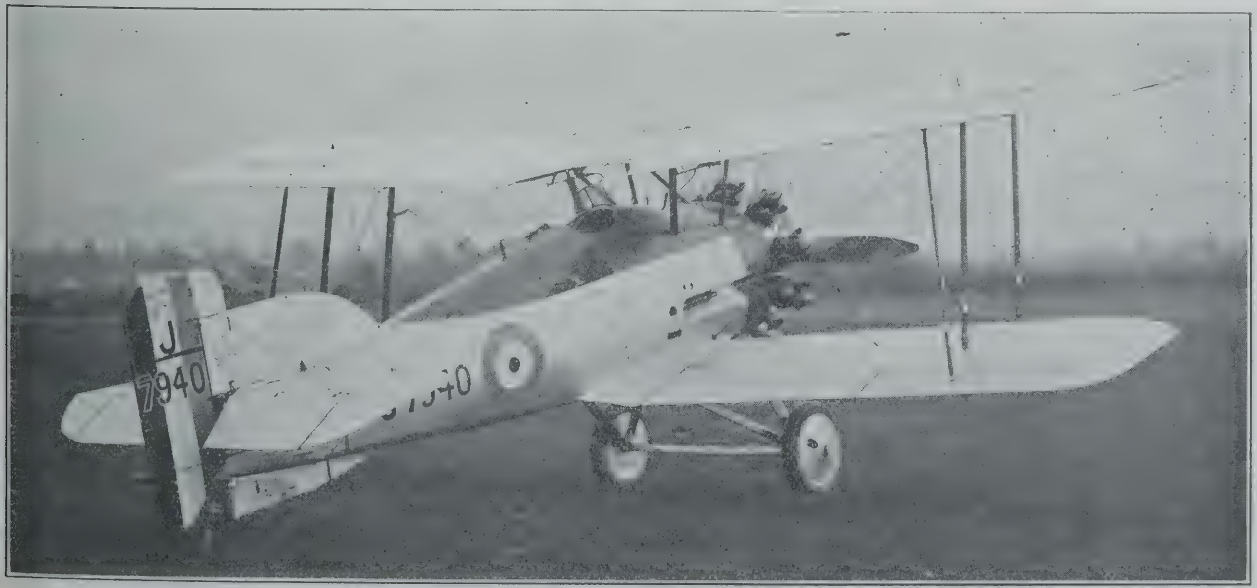
The First Lord of the Admiralty, in reply to a question by Lt.-Cdr. Kenworthy in the House of Commons on July 18, said that the approximate full speed of His Majesty's aircraft-carrier *Furious* was 3½ knots before conversion and was now 30 knots. She carried 36 aeroplanes, of which 12 could be converted to seaplanes.

Inter-Services Lawn Tennis.

The Army won the inter-Services Lawn Tennis Championship at Wimbledon on July 16 and 17. The Army scored 10, the Navy 6, and the R.A.F. 2.

In the Singles Wing Cdr. Saul, the R.A.F. Champion, was beaten by Capt. O'Callaghan (Army) 6—2, 6—3, and by Cmdr. Worthington (R.N.) 7—9, 6—1, 6—1. Flt. Lt. Davies (R.A.F.) was beaten by Lt.-Cdr. Glover (R.N.) 11—9, 8—6, and by Maj. Scrope (Army) 6—4, 6—3. Flt. Lt. Gilbert (R.A.F.) was beaten by Capt. Lewis-Barclay (Army) 6—1, 6—4, but beat Lt. Buzzard (R.N.) 6—2, 6—4.

In the Doubles, Wing Cdr. Saul and Flt. Lt. Davies were beaten by Maj. Scrope and Capt. O'Callaghan 7—5, 6—2, but beat Lt.-Cdr. Glover and Eng. Lt.-Cdr. Carr 6—4, 1—6, 6—4. Flt. Lt. Williamson Jones and Flt. Lt. Hirst were beaten by Lt.-Cdr. Worthington and Lt. Buzzard 6—4, 6—3, and by Lt. Baker and Lt. Hutchins 6—2, 6—2. Ft. Lt. Gilbert and Sq. Ldr. Murphy were beaten by Lt.-Col. Rawson and Capt. Lewis-Barclay 6—2, 6—3, and by Surg. Lt.-Cdr. Ratcliffe and Lt. Evered 6—2, 6—4.



THE GLOSTER GOLDFINCH.—A three-quarter rear view of the latest single-seat fighter produced by the Gloster Aircraft Co. Ltd. It has a maximum speed of 172 m.p.h. at 10,000 feet.

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CLEANNESS AND SPEED.

By G. H. Handasyde, O.B.E.

[The following article by Mr. Handasyde deserves the con-ieration of the rising generation of designers, who have en so trained on wind-tunnels and equations as to believe at aeroplane design is an exact science. We are still a ng way from understanding the actual effect on air-flow of mbining a number of bodies each of which may be individu-ly an excellent streamline shape in theory and in practice. he Martinsyde F.4, designed in 1917, still seems as good as ny of our later scientific products when fitted with the me power-plant, even though the newer machines may be esigned to fit the engines and the F.4 was not. And Mr. andasyde's views may provide food for useful thought.]

Does a clean design influence speed in an aeroplane? The nmediate answer to the question will be yes. But on giving e matter a moment's consideration it is obvious that the atement requires qualification, that qualification being that e cleanness is combined with low resistance. If that be , then there will be no need to examine the case any rther.

It is in view of this qualification that the writer pro-oses to examine in the present article whether or not the eneral accepted ideas of cleanness conform with the require-ents of the qualification.

In the first place it will be as well to examine which is tually meant by a clean design. Does it only imply that a rticular machine is nice and smooth all over, free from inor projections such as control levers, wiring fittings, bolt eads, etc.? Or does it mean that the design as a whole is easing to the eye, that the fuselage is of a nice streamline rm, and that struts, wires, etc., are reduced to a minimum umber, and all the various components are blended to-ether with easy fairings, conforming with the accepted eas of streamlining?

Take the second case first, as it is of far greater im-ortance, as was proved by a great number of full-scale periments, extending over a number of years, and carried t by the writer for the late Martinsyde firm :—

In the first place it is very difficult to get two designers agree as to what is pleasing to the eye in aircraft. One as only got to look at productions of the various designers confirm this statement.

They are not in agreement on any one type as to numbers struts, sunk fittings or the methods of blending the rious parts together to get the best results. Nor do the rformances of the various machines indicate a marked periority of any one design over the other, except in one two cases.

One of these exceptions which the writer has in mind has monstrated that its qualities are very much in advance any of its competitors, and yet this particular machine es not conform very closely with general ideas at present s fuselage is not very streamline in shape, nor does its eed come from lack of struts and wires, or from a lavish nount of streamlining. But this particular design con-ms many features which were found to be desirable to tain speed in the Martinsyde experiments.

This statement does not, however, mean to imply that to in speed it is necessary to have a lot of struts and wires, little or no fairing of the various components together. ther it points to the fact that were there fewer struts and res and more correct fairing the speed would be increased. e difficulty to be overcome, however, is to find out what ape the fairing should take.

To indicate how much this might depart from accepted eas, and as an indication of the difficulties, reference is ade to experiments carried out on the under-side of the selage of a Martinsyde F.4 from aft of the trailing edge the bottom wings to the stern-post. At first a fairing as carried from the wing to the stern-post in an un-oken taper of approximately D section at the trailing edge the bottom wing, dying away to nothing at the stern-ost.

In the vicinity of the trailing edge the structure was ply. Aft of this it was canvas carried on wood stringers. It should be noted that in this design the lower wings ere carried close against the under-side of the fuselage ngerons,—the under-side of the wing actually forming e bottom covering of the fuselage mid-section.

Several schemes were tried, and the best seemed to be one here the fairing was carried only half-way to the tail-end,—e remainder of the fuselage being covered-in flat. This ve a broken line, and was not nearly so pleasing to the e as the complete fairing, but it meant two to three miles fference in speed, and the production machines were all ted with this type

A later experiment was made in which there was no fairing,—the whole under-side of the fuselage being covered-in flat. The space between the bottom of the fuselage and the trailing edge of the wing was filled in with a square ending, forming a step very like that of a float. This gave very much the best results. But, it was a nasty blow to one's ideas of streamlines and what the air flow did at the junction of wing and fuselage.

It is not claimed that this is the only correct way of dealing with the problem. It does, however, serve to show that things are not always what one thinks they should be, and that a lot of research could be carried out on this point alone to determine the correct shape. But the research has to be done full scale, as it is impossible in a tunnel to reproduce actual flying conditions.

The tendency of to-day is towards round or oval section fuselages. This in the light of the experimental data is wrong. It may be that a circular streamline shape gives the best results on its own, but when it is linked up with other surfaces, such as wings, etc., it is far from being the best, more especially when forming the mid-section of a biplane fuselage. It would seem that a rectangle filling the entire gap is the best.

Of course, in some cases this type is impossible to use, because of other conditions. But undoubtedly the more nearly one approaches this, the less is the resistance.

The after end might gradually approach a circular section without harm, if the tail-plane be mounted mid-section. But this entails lowering the tail-plane in relation to the top wing. Which is undoubtedly an undesirable feature, and one that increases resistance to a considerable extent.

Then again it is of the greatest importance that the top side of the fuselage should be level, and that all the taper in side-elevation should be got by the underside bending up towards the top, both fore and aft. This shape destroys the more general ideas of streamline form, but it is one that has been incorporated in the fastest machines of to-day, and accounts for a good deal of their speed.

Their design is on the whole clean, but not more so than other designs. In fact it is less so than one or two others. But in the one case the design is clean and of low resistance as a unit, while on the other hand the other design is very clean and pleasing to the eye, and, no doubt, of even lower resistance in the various components, but the unit resistance is higher, owing to lack of harmony between the various components So the advantage gained by the cleanness of the design is lost through lack of the qualification that cleanness must be combined with low resistance.

Or, to put it another way, a clean design may or may not be an efficient one.

Now take the case of an efficient machine, but one not particularly clean in the first sense. That is to say, no attempt is made to bury fittings, and the machine is covered with small resistances such as bolt-heads, cowl fittings, etc. Suppose the machine is taken and all roughness is done away with, fittings sunk, everything is made flush. What is the probable gain in speed?

On paper there should be a fair amount, in practice there may be possibly nil, or at the best very little, and certainly not enough to be worth the extra cost except in the case of racing machines.

To reinforce this statement take an actual case, namely the Martinsyde F.4. This machine, though produced eleven years ago, is, if fitted with equal engines, probably as fast as anything of similar type built to-day. It has been fitted with various engines, none of which it was ever designed to take, and yet it responds with improved speed proportional to the increase in H.P. of the engines fitted.

Take the case when fitted with a radial engine. The fuselage of this machine is deep and narrow with flat sides, and therefore ill adapted according to accepted practice for fitting with a radial. The engine was more or less just stuck on the front end, with the result that vertically the fuselage is much deeper than the diameter of the engine. But sideways the position is reversed,—the result being neither pleasing to the eye nor of good streamline form. But the result was good.

Now would the performance be increased if the sides were faired so as to take a form corresponding more nearly to that of the engine? It is very nearly safe to say it would not.

All the experiments seemed to point to the fact that it was the main shape that counted and that streamline fairings added to projections tended to make the resistance worse, owing to the increase in area and to the fact that it is very difficult to find the direction the air-flow wants to take It is possible that the streamline fairing might be nearly at right angles to the flow.

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During the period 1918 to 1920 a number of experiments were made with various sized resistance surfaces at various postions on the fuselage. The results, however, were so conflicting that it was decided to take a series of readings with Pitot tubes all over the machine. This is a long and laborious job, but it is one that would repay any designer to undertake who wants to find out what the air does round any particular machine.

In this particular machine it showed why the previous resistance results were so conflicting, and clearly indicated that in certain regions minor projections and roughness were not likely to affect performance, and that therefore cleanness of the first or minor order in these particular regions on the fuselage would not influence speed.

The Pitot readings very clearly indicated that the major portion of the middle section of the fuselage carried along with it a layer of dead air which in some places reached a depth of 3 inches. It may be as well to note that it is not implied that the dead air was absolutely without motion, as any reading under 10 m.p.h. was considered dead, though it might actually give some slight reading.

It may be of some interest to give a general idea as to how the Pitot readings were taken.

In the main Pitot heads were secured along the fuselage at every 2 feet and every 6 inches vertically, the standard distance from the side of the surface being $\frac{1}{2}$ inch. Where the reading at any of these points was unusual, a number of intermediate readings, both fore and aft of the point, and at 1 inch and 3 inches from the surface were taken. This was carried out on both sides of the fuselage and tail plane and fin.

A set of very close readings both front and rear of the radiator were taken, and served to show how little the radiator experts of that time knew about their subject. The air flow was actually in the wrong direction through the tubes at a position where they fondly hoped to get cooling surfaces.

It was thought at first that the dead region was merely a backwater, due to the air being thrown outwards by the nose of the machine. But this was not so, as no dead area existed on the front end of the fuselage. The vertical boundaries of the area were roughly in line with the edges of the wings.

Sufficient experiments were carried out to determine whether or not the wings alone were responsible. Undoubtedly the wings do have a very great influence on the flow over the fuselage, especially where there is a gap between the top of the fuselage and the under-side of the top wing. And, if there has to be such a gap, then the gap should be either small or large.

How small requires experiment, but in this case the difference of an increase of $\frac{1}{2}$ inch made a reduction of 2 m.p.h., so it would appear that the gap should just be large enough to allow of a free flow, but not large enough to allow of two independent flows starting to take place. If the gap has to be fairly large, then it should be large enough to allow of the two flows having sufficient room to develop separately.

Cleanness is only relative. What may appear clean to one designer may appear just the reverse to another, but is either of them in a position to judge? Is there anyone at present with sufficient knowledge of the air-flow round an aeroplane to be able to pronounce judgment as to whether a machine is aerodynamically clean or not?

The writer has endeavoured to show how small details can and do affect the whole. Experiments seem to indicate that the flow round an aeroplane should be treated as a whole, and not as a collection of flows round more or less adjacent parts.

The goal to aim at is unit flow, and when cleanness in design is looked at from this standpoint, then the influence on speed will be great. But beauty of outline is apt to be misleading and if cleanness is judged from this standpoint, the apparent clean design may fall far short of being a good one when speed is considered.

AN ALTITUDE TEST.

On July 16 Lieut. W. H. Bleakley, Air Corps, reached an indicated height of 38,000 ft. on the U.S. Air Corps Materiel Division XCO-5 biplane (400 h.p. Liberty engine) in order to test a new Form F-IA supercharger, designed to give sea-level pressure up to 30,000 feet, as against 20,000 feet of the older Form F. He used an adjustable pitch duralumin airscrew.

Mr. Bleakley remained at this height, which was ultimately corrected to 36,509 feet, for 18 minutes before the engine began to over-heat and misfire.

He used liquid oxygen instead of the ordinary oxygen gas, and suffered no ill-effects whatever. In a previous practice flight on May 31 he used the gas, and it was over two weeks before he recovered fully from the after-effects.

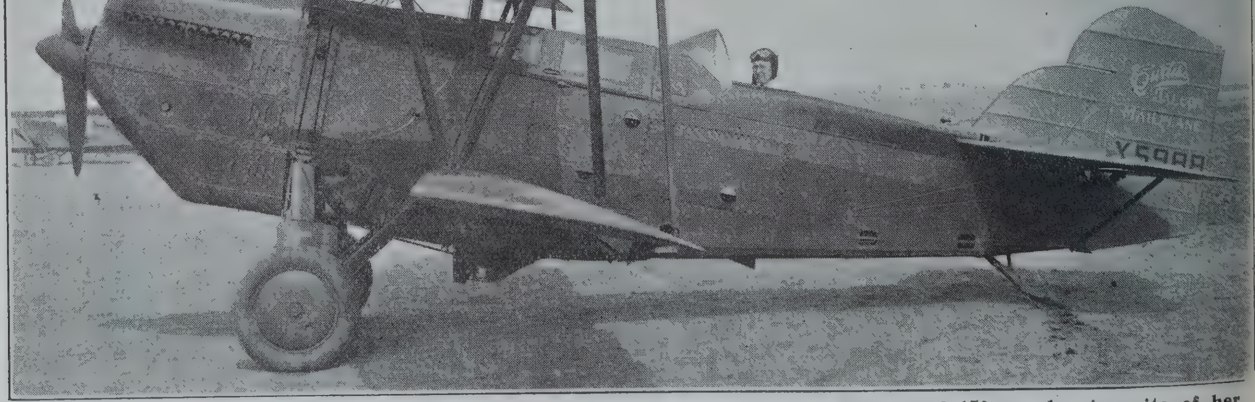
THE CURTISS FALCON MAILPLANE.

The Curtiss Aeroplane and Motor Co., of Garden City, L.I., N.Y., has just completed a commercial version of their Falcon two-seat reconnaissance biplane, and the first specimen has been purchased by the newly-formed Transcontinental Air Transport, Inc., for the personal use of Col. Charles Lindbergh, who is in charge of the company's technical committee.

The new Curtiss Falcon is equipped to carry 750 lbs. of mail or baggage in two metal-lined compartments forward of the pilot. These two compartments have a combined cargo capacity of 52 cubic feet. The rear compartment is also available as a passenger cabin and is fitted with two folding seats, sliding glass windows, adjustable ventilators and internal lighting.

The engine fitted is a 625 h.p. Curtiss Conqueror Vee water-cooled engine. This engine normally develops 625 h.p. at 2,400 r.p.m., but it has been fitted with a special, large Curtiss-Reed airscrew which holds it down to 1,800 r.p.m.

The top speed of the Falcon is just over 150 m.p.h. and the cruising speed is 135 m.p.h. The machine carries 150 gallons of petrol, which is enough for five hours, or about 775 miles, at cruising speed.



RELATIVE CLEANLINESS.—**The Curtiss Falcon Mailplane, which has a speed of 150 m.p.hr. in spite of her size and limited revolutions of the engine.**

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Pilot : : W. Lawrence Hope.

2nd Place

Bristol 101.
Engine : 490 h.p. " Bristol " Jupiter.
Pilot : : : C. F. Uwins.

Fastest Time.

Avro Avenger.
Engine : 550 h.p. " Napier " Lion.
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THE SIMMONDS SPARTAN.

The Simmonds Spartan biplane is quite one of the most interesting machines which has been produced for a long time. In general appearance it is a neat light-aeroplane on modern lines with a Cirrus II engine and a split undercarriage. Its originality lies in the interchangeability of its aerofoil surfaces.

To give credit where credit is due, a similar idea of interchangeability was introduced in the Baboon, designed by Mr. Frederick Koolhoven for the British Aerial Transport Company, commonly known as the Bat Company, just after the War. The Baboon was a training machine in which ailerons, rudder and elevator-flaps were all the same. Consequently, instead of having to carry a stock of spares for all these different parts at a training school, a much smaller stock of control flaps was enough to keep going. But in the Baboon the wings were not interchangeable, except from top to bottom.

Mr. Simmonds has gone a step further. In the Spartan although all the wings have tapered ends they are all interchangeable. This is done by the simple process of using a wing-curve of symmetrical section above and below. Thus if a wing be wanted for the right-hand side of the machine one side of it is on top, and if the same wing be wanted for the left-hand side of the machine it is merely turned over and the under surface then becomes the upper surface.

In a similar way the same aerofoil can be used for either a right or left elevator-flap, or for the rudder.

Still further, the aerofoil which does duty for a fin in front of the rudder can be used for either the right or left side of the fixed tail-plane.

Also the same aileron can be used for either the right hand or left hand side.

Lastly, the main bracing wires are all of the same size and length, so here again only one part need be carried as a spare for all main bracing.

Thus a club owning several machines built on these lines, instead of having to carry a whole stock of spare wings (upper and lower, left and right), tail-planes, rudders, fins and elevators (the parts most likely to be damaged in a minor accident such as a collision with another machine on the ground or with a carelessly-driven car on the aerodrome) need only carry a small stock of spares, knowing that whatever the damage the parts can be replaced from stock. And as there are so few different types of aerofoil to make, the actual production of the aerofoils can be made considerably cheaper.

The advantages to private owners is equally clear. The private owner can keep a couple of spare planes and a few spare control aerofoils in his garage at comparatively small expense. In the ordinary way he could not afford to keep a complete set of planes and control-flaps and consequently if he had a minor accident he would be compelled to wait until he could get spare parts from the makers.

If after further test this system of design proves itself to be without any important effect on the performance of the machine, it seems worth careful consideration by the designers of big machines either for Service or civil purposes. As Mr. Simmonds argued in a recent letter, it is well known that considerably over half of the spares usually carried b R.A.F. Stations and by aircraft carriers of the Fleet Air Ar are never used because they are not needed before they b come unserviceable or obsolete. By this interchangeab system the number of spares can be reduced and a stead but much smaller, flow of new spares can pass through th Stores Depots.

Even if there be some objection to the system in hig performance fighters or actual war machines, it would see to have undoubted advantages for training machines eithe at Service or civilian flying training schools.

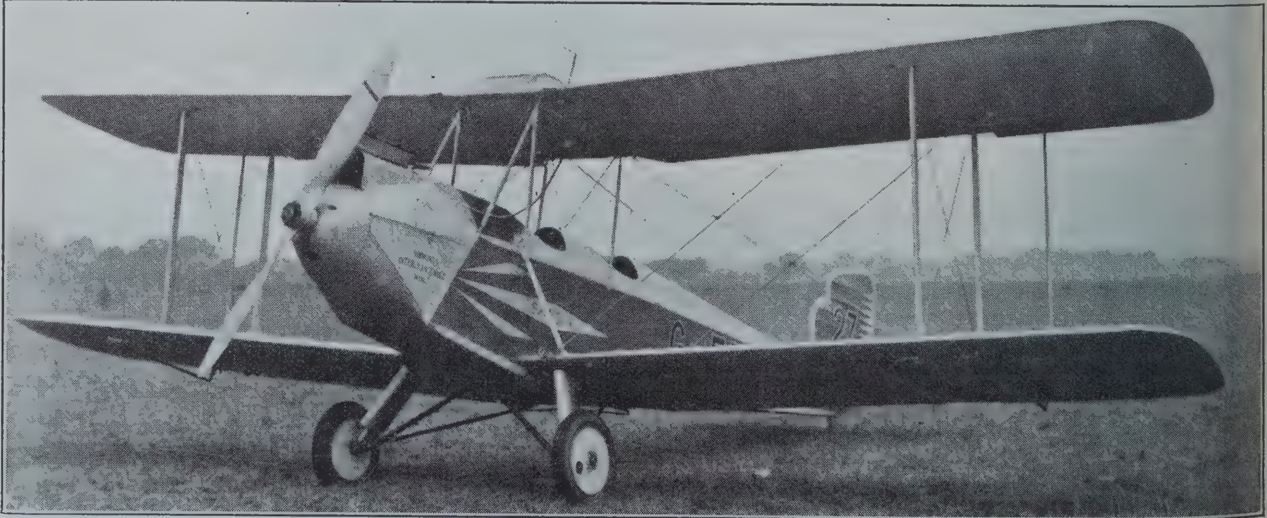
Considered simply as a flying machine the Spartan seen to be a very good job. It has been designed for an Aer batic Certificate of Airworthiness at 1,680 lbs., which M Simmonds claims is higher than that of any other lig aeroplane. He adds that the service weight is likely to b in the neighbourhood of 1,400 lbs., which is regarded a fairly standard weight for this class of machine. At th weight the Spartan certainly seems to be very robust, an slight mishaps may be avoided owing to its extra strengtl

Pilots who have flown the machine say that her contro are very good. The view from the cockpit is clear and eac cockpit has a large door which makes entrance easy. Th luggage compartment is large, and quite easily takes go clubs, fishing rods and other long articles. In accord wit modern practice in aeroplanes the wings fold back and eac wing only requires one locking-pin to be withdrawn.

The performance of the Spartan will be watched wit interest no matter what its position in the race for th King's Cup may have been. If this system of interchange ability does not detract from its performance there seems n reason why all light aeroplanes and training machines a any rate should not be built on the same system.

Though the name of Mr. Simmonds is not well known out side the Aircraft Trade, he is a young man with a very con siderable amount of experience. He was originally at th Royal Aircraft Establishment at Farnborough, where he wa Secretary of the R.A.E. Club which built quite an interestin little machine for one of the earliest light aeroplane meet ings in this country. From the R.A.E. he went to th Supermarine Company at Southampton, where as a designe he has necessarily acquired valuable knowledge during th recent years in which the Supermarine firm has produce such widely different types of craft as the Southampton fly ing-boats and the Supermarine-Napier machine which wo the Schneider Trophy.

One happens to know that Mr. Simmonds' ideas ru equally towards very large machines and very small ones so that he must by no means be regarded simply as the de signer of one light aeroplane with considerable possibilities And apart from his position as a designer, Mr. Simmonds i the Managing Director of the Hampshire Aeroplane Clul one of the most successful organisations in this country It was his experience of club work which first indicated t him the need for reducing the cost of production of ligh aeroplanes and also the cost of operating them. Certainl he seems to have gone far towards the necessary solutio of these problems.—C. G. G.



THE SIMMONDS SPARTAN.—The outstanding novelty of the past six months. With interchangeable wings and control-aerofoils the machine has a strong appeal as a training machine, and to the private owner.

KING'S CUP
WON ON
SHELL
FOR THE
5TH TIME

Mr. W. L. Hope, winner of the same race in 1927, flying the new Gypsy-type Moth and using Shell Petrol, won the King's Cup Race, which finished at Brooklands on July 21. Mr. Hope won against a notable field of 36 starters.

THE GLOSTER GOLDFINCH.

The Gloster Goldfinch is an all-metal single-seat fighter fitted with the 470 h.p. Bristol Jupiter VII supercharged radial air-cooled engine.

In general arrangement the Goldfinch is very similar to the well-known Gloster Gamecock but it incorporates a number of modifications and improvements that have been suggested during the long period of service of the Gamecock type as one of the standard single-seat fighters of the Royal Air Force.

Primarily the Goldfinch is of all-metal construction.

The wings are built up of high tensile steel strip. The spars consist of two flanges of a special rolled section diagonally braced with short members of the same material. All ribs are built up of high tensile strip. Narrow-chord ailerons built up of high tensile steel strip are fitted to top and bottom planes and are carried on false spars.

The centre-section of reduced chord and thickness is mounted above the fuselage on two sets of steel-tube struts in the form of an " N " when viewed from the front. This new arrangement, coupled with the thin centre-section, provides a considerably better view forward than that on the Gamecock I, which had an inverted Vee cabane and no centre-section. The centre-section spars are of high tensile steel-tube and the ribs are built up of strip of the same material. A wireless and dual-purpose generator as well as a lighting and heating generator are built into the top centre-section where they provide the minimum of drag and do not materially affect the top speed as in the case of generators fitted in an exposed position.

The two fuel tanks are carried in the top plane, one on either side of the fuselage, the petrol feed being entirely by gravity, a system that has given every satisfaction and proved so reliable in the Gamecock and Grebe types. These tanks are easily detachable and can be easily replaced in the field. The oil tank, in the form of a cooler, is mounted behind the engine.

There is one set of parallel streamline steel-tube struts and one interconnecting aileron strut on either side of the fuselage.

The fuselage is constructed in two portions. The front portion is built up of mild steel square tubes and mild steel plate fittings held together by ferrules. Special high tensile steel spars for the attachment of the bottom planes are built into this portion of the fuselage. The engine, a Bristol Jupiter VII, is mounted on a mild steel engine ring rigidly supported by struts to the fuselage. The rear portion of the fuselage is built up of round mild steel and duralumin tubes assembled with pressed mild steel plate fittings which form lugs for the tie-rod cross-bracing.

The front fuselage fairing is of aluminium with detachable panels fastened by flush turnbuttons. The rear portion of the fuselage is covered with fabric over wooden formers.

The tail unit, of all-steel construction, consists of tail plane and elevators, top and bottom fins and balanced rudder. The tail plane is built up on continuous spars of round mild steel tube, and is mounted above the top longerons of the fuselage. It is pivotted at the front spar, the tail adjusting gear being actuated through the rear spar by means of a square thread and sprocket wheel operated from a har wheel in the pilot's cockpit.

The undercarriage is of the standard Gloster oleo ty with oil damping device and rubber buffers.

The pilot's cockpit is well arranged and roomy and equipped with an adjustable seat which can be operated a lever alongside, the weight being suspended on elast shock absorber cord. A door is provided in the port side the fairing to allow of easy exit.

The armament consists of two fixed Vickers guns mount in troughs, one on either side of the fuselage and firi between the cylinder heads and through the airscre Oxygen equipment is fitted and the wireless transmitter ar receiver are carried in an aluminium tubular crate whic is dropped into place vertically in the bay behind the pilo The military load and fuel are arranged to give the minimu effect on trim for variation of load.

According to the official Martlesham Heath report th Goldfinch is very manœuvrable and easy to control. Co trols are very light and effective at operational height Landing is easy and pleasant and taxying very good. Th view is very good for fighting, bombing and ground machin gunning. The cockpit is well arranged, roomy, warm an comfortable.

As illustrated, the machine is fitted with short stub e haust pipes, but an exhaust-ring flame damper can be fitte thus making it an ideal night fighting machine owing its low landing speed and wide-track undercarriage.

SPECIFICATION.

DIMENSIONS.—Span (top plane) 30 ft. (9.14 m.), Span (bottom plan 27 ft. 10 in. (8.47 m.), Chord (top) 5 ft. 3 in. (1.6 m.), Chord (botton 5 ft. 2½ in. (1.59 m.), Wing area 274.32 sq. ft. (25.4 sq. m.), Lengt 22 ft. 3 in. (6.8 m.), Height 10 ft. 6 in. (3.2 m.), Stagger 1 f 8 in. (0.51 m.).

WEIGHTS AND LOADINGS.—Weight loaded 3,050 lb. (1,385 kg.), Wir loading 11.77 lb./sq. ft. (54.5 kg./sq. m.), Power loading 8.08 lb. h.p. (3.68 kg./h.p.).

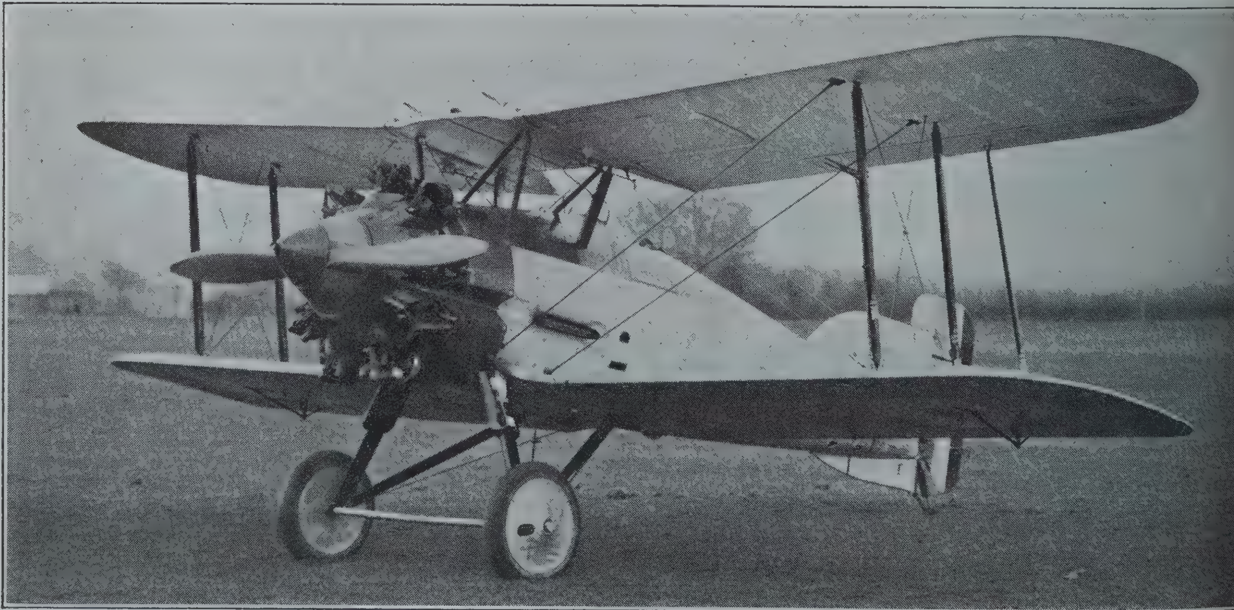
PERFORMANCE.—Speed at 10,000 ft. (3,050 m.) 172 m.p.h. (275 km.h. Speed at 15,000 ft. (4,575 m.) 167 m.p.h. (269 km.h.), Speed 20,000 ft (6,100 m.) 157 m.p.h. (253 km.h.), Landing speed 59 m.p. (95 km.h.), Climb to 5,000 ft. (1,525 m.) 3 min. 18 sec., to 10,0 ft. (3,050 m.) 6 min. 30 sec., to 15,000 ft. (4,575 m.) 10 min. 21 sec to 20,000 ft. (6,100 m.) 16 min. 9 sec., to 25,000 ft. (7,625 m.) 28 min Service Ceiling 26,800 ft. (8,170 m.), Absolute ceiling 28,000 f (8,840 m.).

DORNIER SUPERWALS FOR THE U.S.A.

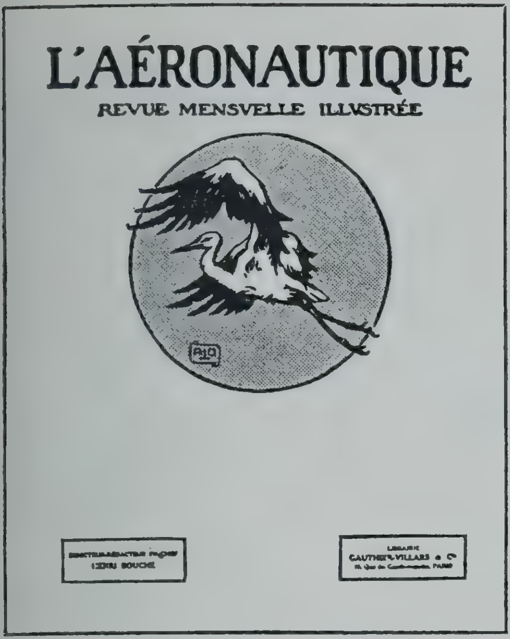
The Detroit and Cleveland Aerial Navigation Co., of 30 N. Michigan Avenue, Chicago, an offshoot of the Detro and Cleveland Navigation Co., a Great Lakes steamshi company, plans to operate a flying-boat service over th Great Lakes.

The eastern section of the line across Lake Erie betwee Detroit, Cleveland and Buffalo is to begin operations o July 1, 1929, and the western section from Detroit to Chicag by way of Lake Huron, Mackinac and Lake Michigan will b opened several months later.

Two 35-passenger Dornier Superwal flying-boats have bee ordered by the company for use on this service.



THE GLOSTER GOLDFINCH.—A high-performance all-metal single-seat fighter fitted with the 470 h.p. Bristol Jupiter VII engine.



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THE MECHANISM OF AIR SURVEY.

The following letter from the managing director of the Aircraft Operating Co. Ltd. deserves particular attention :—

Sir,—The writer of the article which appeared in The Aeroplane of June 27, under the title of "Mechanical Plotting of Air Photographs," seems to assume that the information that he is giving is new to the British companies interested in air survey, and that the system as described by him has not been adopted because there has been a relatively small demand for air survey, and also that this demand comes from districts where surveys of approximate accuracy are preferable to no surveys at all. This is entirely incorrect. As a matter of fact, the method described has been thoroughly investigated, both by the Air Survey Committee and by the technical experts of the Aircraft Operating Company.

While it is true that successful air surveys do not depend entirely on the skill of the pilot and photographer, yet these men, by doing their work accurately, can enable just as good a map to be made without a special plotting machine, as with it, in certain circumstances. The contrary view may be prevalent in some circles, but certainly not in informed circles.

The writer of the article seems to think there is nothing between the mosaic (where no allowance is made for tilt, etc.) and the machine plot. This is quite wrong. The Arundel System, which was evolved and perfected by the Air Survey Committee, and is in use by my company, cuts out the effect of small tilts, but does not ignore them, and given skill on the part of the pilot, which the writer of the article seems to deride somewhat, the system produces just as good maps at topographical scales as a machine, at less cost and in less time, and without the large capital expenditure involved in the purchase of an expensive plotting apparatus.

We are fully alive to the value of the plotting machine for certain classes of work, but we have yet to learn that a machine has been placed on the market whose uses would be economically justified. The main trouble lies in the provision of ground control. Given three fixed points, on each photograph, there is little doubt that a satisfactory map can be produced, though not without considerable complication and expense. The cost of providing this amount of control would, however, be prohibitive, and in many types of country, impossible to carry out.

Claims are frequently made by certain firms that their particular products do not require such a close control after the first pair of overlapping photographs. As far as my information goes, however, there has, as yet, been no practical demonstration of such claims, and after an exhaustive study of the subject, in collaboration with the Air Survey Committee, my company are of the opinion th the general principles and design of Continental machin do not favour a sufficiently rapid and accurate system mapping in advance of ground control.

These arguments apply in particular to the determinatic of contours, in advance of height control, which are, hov ever, just as important as plan positions for many purpose These questions have been given first consideration in tl fundamental design of the new Fourcade Stereogonimete which is now being constructed under the auspices of tl Air Survey Committee. It is considered that this machir has accordingly far more chance of solving the proble than its predecessors. Elementary precaution and regai for the pockets of their clients demand that British firn should await the result of trials of this new machine befoi committing their organisation to Continental types, whic are probably already out of date.

The value of Continental models in dealing with groun photographs, in which case the setting trouble peculiar the air photograph do not arise, is not questioned, althoug their performance in this respect is not likely to better tl Fourcade machine. This, however, is an application photographic surveys, suitable only to very mountainoı country, with which the Aircraft Operating Company is no at present, primarily concerned.

It is quite clear that the writer of the article referred in The Aeroplane has no knowledge whatever of the valı able experimental and research work which is being carrie out in this country. That air survey has already reached high stage of development without the use of plotting instrı ments is shown by the very important contracts now bein operated by British firms, and the demand for this wor is steadily increasing.—Yours faithfully,

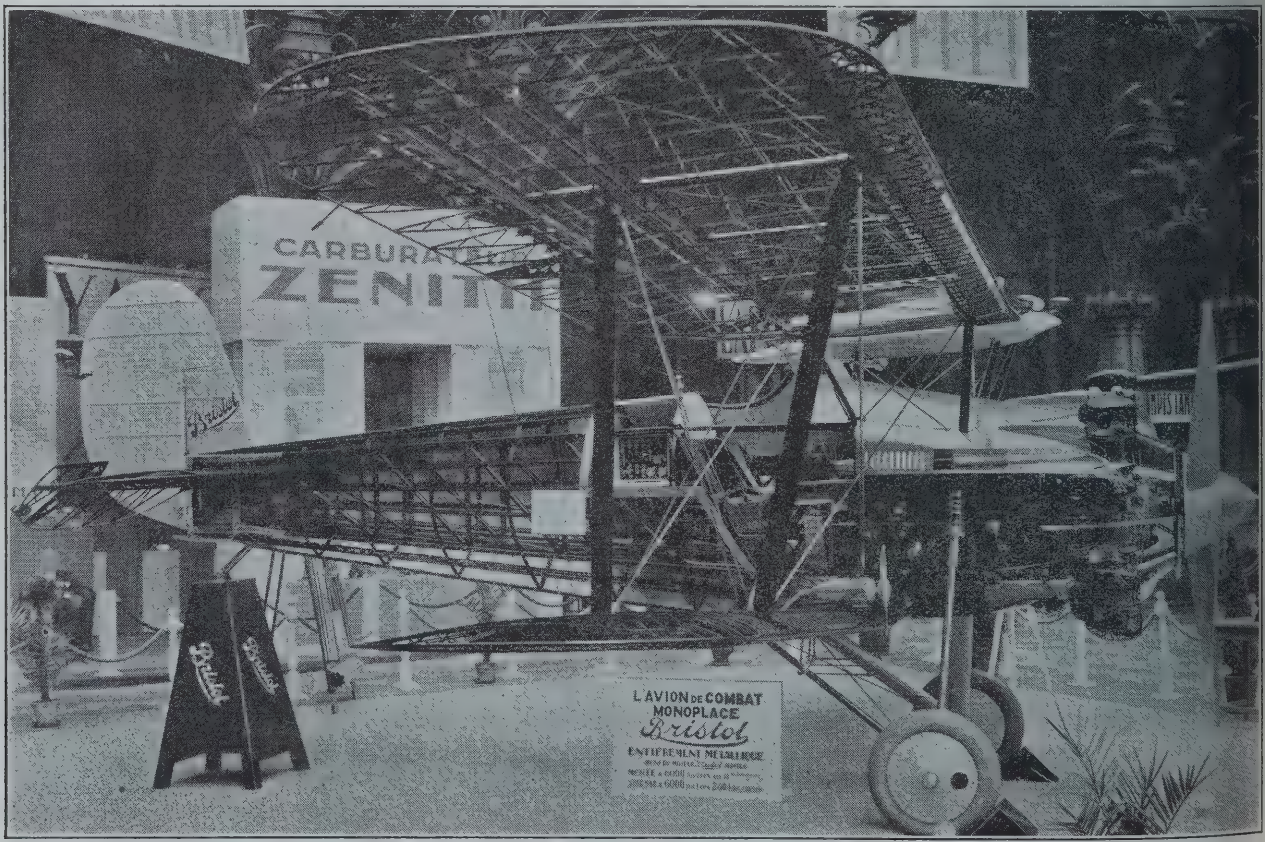
H. Hemming, Managing Director,
The Aircraft Operating Company Ltd.

[One's only excuse for the article is that there is a lim to the technical knowledge which any individual can hol and so, once in a while, even The Aeroplane must err.—C. G. G.]

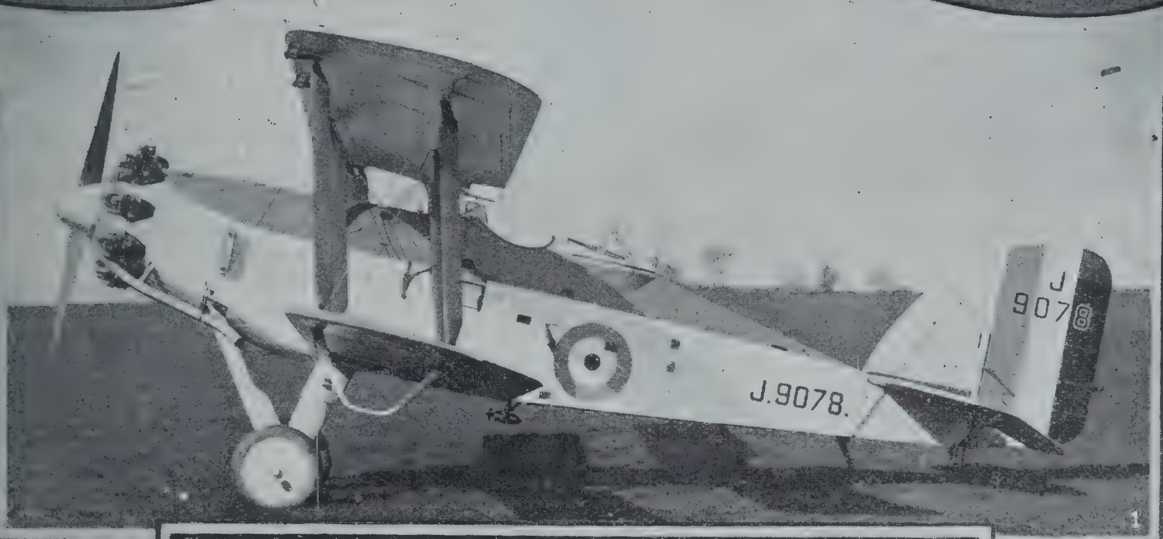
AFRICAN AIRWAYS FAILURE.

On July 19 the directors of African Airways Ltd., th company which was incorporated in Pretoria on April 24 operate an air service between Johannesburg and Durba under a subsidy of £8,000 per annum to be given by th Union Government, announced that owing to lack of publi support it had been decided to abandon the undertaking, an that all capital subscriptions were being returned.

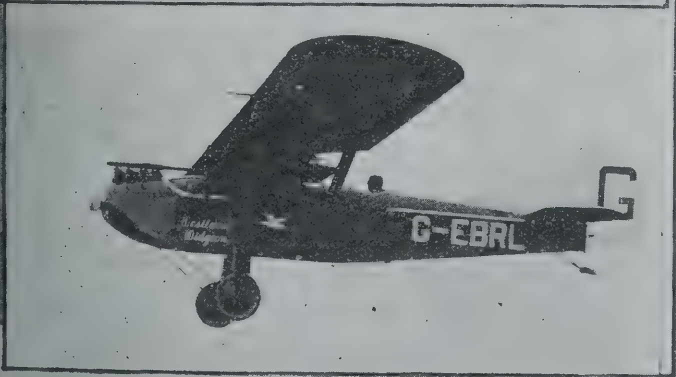
There appears to have been a considerable amount political intrigue and general scandal behind this failure bring to fruition what was in fact a very sound scheme in it original form.



SHOWING HOW.—The Bristol Single-Seat Fighter (Jupiter) at the Paris Aero-Show, which was admitted by visitors of all nations to be the finest example ever seen on the Continent of all-metal construction.



WESTLAND



WESTLAND AIRCRAFT

THE WESTLAND WAPITI.

(Photos 1 & 2.)

With Jupiter VI engine. A General Purposes Aircraft suitable for reconnaissance, bombing, wireless and advanced training, etc. Fitted with Handley Page Automatic Slot Gear. As supplied to the Royal Air Force.

THE WESTLAND WIDGEON.

(Photos 3 & 4.)

An ideal light 'plane for the private owner, club use, etc. Robustly constructed to exceedingly high standards a machine the excellence of which will be appreciated by the most experienced as well as the new pilot. Possesses exceptional controllability, even when in stalled flight. Folding wings—no rigging to require adjustment—excellent view for pilot and passenger. Low running costs.

ANOTHER SUCCESS.—Air League Challenge Cup won by a private owner flying a Westland Widgeon at the Midland Air Pageant, June 9th, 1928.

WESTLAND AIRCRAFT WORKS
(Branch of Petters Limited).
Contractors to the Air Ministry,
YEOVIL, ENGLAND.

THE ITALIAN POLAR EXPEDITION.

Signor Mussolini has ordered the immediate return of General Nobile and the rescued members of the crew of the *Italia*, and has forbidden them to make any further statements.

The Swedish Government has recalled the Swedish relief expedition.

The Russians and the Italians will continue the search for the Italian balloon party.

Opinion is divided as to the possible fate of Capt. Amundsen and Commandant Guilbaud. The Russians consider that they have certainly connected up with the balloon party whereas others are as certain that the Latham flying-boat force landed in the open sea, that it has broken up, and that the crew has been lost.

A Norwegian cruiser and an ice-breaker have made a complete and systematic search of all likely areas in which to find Capt. Amundsen and his companions, but has found nothing. The French cruiser *Strasbourg* is continuing the search.

The Russian ice-breaker *Krassin* has slightly damaged its propeller and rudder and must proceed to Gothenburg for repairs, but will renew the search for the balloon party on or about August 15.

"ROUND IN TWENTY-THREE."

On July 22 Mr. J. H. Mears, Mr. C. B. D. Collier and a Sealyham terrier arrived at The Battery, New York, after having encircled the World partly by air and partly by sea in 23 days 15 hrs. 21 mins. 3 secs., thus beating the old record of 28 days 14 hrs. 36 mins. 5 secs. by 4 days 23 hrs. 15 mins. 2 secs.

They left The Battery, New York, on June 29 in a seaplane in which they overhauled the *Olympic*, then well out to sea. On arrival at Cherbourg they disembarked a Fairchild monoplane (425 h.p. Pratt and Whitney Wasp engine), which was on board with them, and in this they flew to Tokyo, by way of Moscow and Siberia, in six days.

From Tokyo to Vancouver they and their Fairchild monoplane were transported across the Pacific in the *Empress of Russia*, arriving at the latter place on July 20. They immediately left by air for Spokane, Wash.

On July 21 they flew to Minneapolis and on the following day to Chicago, Cleveland and New York, most of the way through fog and rain.

Mr. Collier is an experienced air-mail pilot and sky-writer. He deserves the highest praise of what was a thoroughly sporting and comparatively sane record-breaking attempt.

AN AVIATION GUIDE TO SOUTH AMERICA.

Anuario-Guia de la Aeronautica. 256 pages. Produced by Mr. A. Mortz, published by Editorial Autoaero, Buenos Aires. Price 1 dollar. Obtainable from THE AEROPLANE Book Dept.

Businesslike firms concerned with the Aircraft Trade, and intelligent flying officers who can remember enough school Latin to dig the essence out of the Spanish and Italian languages, will find much interest in this annual guide to South American aviation. We are doing a good deal of trade in South America these days and the South American nations are all raising very respectable Air Services, so both from the commercial and Service point of view a knowledge of what is being done in South America is worth having.

The book is primarily concerned with aviation in Argentina where there is more flying than anywhere else in South America. It begins with a kind of monthly record of what has been happening in Argentine aviation throughout the year 1927 and that in itself is distinctly enlightening. Following this is a section on Argentine Military Aviation describing the activities of the Army Air Service, giving a list of certificated pilots, a list of the long flights of the year, and a very complete directory of the organisation of the Service together with the names of the officials of each Department.

Then comes a similarly complete description of Argentin Naval Aviation, which seems to be going very strong.

Thereafter is a section on Civil Aviation which now has Director of its own, even as we have. Readers may be surprised to know that 153 certificates have been issued to civi aviators in Argentina.

Our business firms will do well to keep an eye on air line in South America. Quite a lot is being done in that direction.

A large proportion of the book is devoted to description of the great flights of the World. This, of course, is for th benefit of those in South America who are newly intereste in aviation.

After that there are sections devoted to aviation in Brazil Chile, Peru, Bolivia, Uruguay, Paraguay, Columbia, Ecuado and Venezuela, all of which indicate growing activity which is well worth watching.

Altogether it is a very useful little book.—C. G. G.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1].

Report for week ending July 22.

Flying Time 32 hr. *Instruction* 13 hr. 10 min. *Soloists* 18 hr. 5 min. *Soloists.*—Messrs. P. W. Hoare, R. Sanders Clark, P. A. Wills W. Roche Kelly, J. J. Hofer, E. E. Stammers, Will May, M. L. Bramson G. H. Craig, H. M. Samuelson, Art. Fowler, J. C. V. K. Watson *Instruction.*—Miss V. M. Cholmondeley, Messrs. C. Reilly, J. Hanson A. Pitt, E. H. Thierry, G. A. Stedall, T. H. O. Richardson, R. M Doidge, B. Carey, R. S. Rattray, S. Nesbitt, H. M. Samuelson, A Hill Reid, B. E. Johnstone, L. G. Sykes.

On Saturday last the Club took delivery of G-EBYD, a D.H. Moth (Cirrus Mark II).

On Saturday the Club machines were used for ferrying Members from Stag Lane to Brooklands to witness the finish of the King's Cup Race.

In the fatal accident to Mr. G. N. Warwick, the Club loses one of its earliest Members. Mr. Warwick was the first member of the Clu to take out his "A" Licence. The deepest sympathy of all Members is extended to his relatives.

The Lancashire Aero Club.

Report for week ending July 14.

Flying Time 22 hr. 35 min. *Instruction* 10 hr. 50 min. *Soloists* 6 hr. 35 min. *Passengers* 4 hr. 10 min. *Tests* 1 hr. *Instruction.—With Mr. Baker*—Messrs. Williamson, Davies, Stross, Taylor, Agar, Greenhalgh, Harrison, Faulkner, Weale, Ashworth, Serck, Mills, Garner, Kay, Sellars, Allott, Brooking, Chart, Davis (R. G.), Miss Baerlein, Miss Emery. *Soloists (under instruction).*—Messrs. Mills, Harrison, Weale, Garner. *Pilots.*—Messrs. Meads, Harbour, Gort, Lacayo, Twemlow, Gerrard, Ruddy, Chapman, Hall, Agar. *Passengers.—With Messrs. Rowley, Scholes, Hall, Leeming, and Michelson*—8.

Our crash average has improved during the week, two crashes being recorded against the usual one. QL and RR were the culprits (or victims) according to the angle of view, but neither of the accidents was serious. The most serious thing about them was that they interefered very much with flying during by far the best week of weather that we have yet experienced.

Report for week ending July 21.

Flying Time 31 hr. 10 min. *Instruction* 15 hr. 20 min. *Soloists* 8 hr. 30 min. *Passengers* 6 hr. 5 min. *Tests* 1 hr. 15 min. *Instruction.—With Mr. Baker*—Messrs. Tweedale, Garner, Meads, Chart, Davies, Nelson (J. G.), Goss, Weale, Scholes (F.), Ashworth, Faulkner, Allott, Kay, Greenhalgh, Williams, Davies (D. B.), Gort, Agar, Harrison, Secker, Pattricoux, Miss Baerlein, Miss Emery. *With Mr. Cantrill*—Mr. Stern. *Soloists (under instruction).*—Messrs. Tweedale, Chart, Mills. *Pilots.*—Messrs. Lacayo, Gort, Nelson, Riley, Leeming, Goodfellow, Chapman, Michelson, Meads, Brooking. *Passengers.—With Messrs. Scholes, Baker, Lacayo, Leeming, and Goodfellow*—24.

QL came back to service with the new type undercarriage (radius rods in front) and went off the following day to Liverpool for the the Liverpool Club's Aerial Gymkhana. She arrived back in the evening with the undercarriage in a drunken and lop-sided condition. Grave suspicion attaches to Mr. Michelson in this connection, who is stated to have gone in for the "landing high jump." Mr. Goodfellow took OK over to Blackpool to give consolation joy-rides to the five entrants for the Blackpool Nomination Handicap who were disappointed of a flight during the Meeting. The Alpha-Gosport (NF) is at last in service and all dual will in future normally be carried

OUTPUT.—A row of Avro Avians (Cirrus) ready for despatch. The machine on the right bears Spanish markings—for an agent who has his machines delivered to Spain by air.

First
W. Lawrence Hope.
D.H. Moth.
Gipsy Engine.

Second
C. F. Uwins.
Bristol 101.
Jupiter Engine.

1928
King's Cup
Air Race
as in every other year
won on
K·L·G
Sparking Plugs
which were chosen by
all finishers

Third
Miss W. E. Spooner.
D.H. Moth.
Cirrus Engine.

Siddeley Trophy
Miss W. E. Spooner.
D.H. Moth.
Cirrus Engine.

K.L.G. Works, Putney Vale, London, S.W.15. Telephone : Putney 2132-3.
Sole Export Agents : Messrs. S. Smith & Sons (M.A.), Ltd., Cricklewood, N.W.2.

out on this type. She first came into use at the week-end and proved extremely popular, so much so that all the Soloists evinced a desire to go back to dual again.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending July 22.

Flying Time 35 hr. 25 min. *Instruction* 3 hr. *"A" Pilots* 12 hr. 40 min. *Passengers* 18 hr. 55 min. *Test* 50 min. *Instruction.—With Mr. J. D. Parkinson*—Mrs. Kish, Messrs. Cameron, De Pledge, Dodds, Lawson. *"A" Pilots.*—Miss Leathart, Mrs. Heslop, Dr. Dixon, Messrs. A. H. Bell, Runciman, De Pledge, R. N. Thompson, Irving, Robertson, Turnbull, W. B. Ellis, Percy, C. Thompson, Wilson, Heppell. *Passengers.—With Mr. J. D. Parkinson*—Messrs. Bulmer, White, Miss Klyver, Miss Bakewell.

The disappearance of Mr. G. N. Warwick on the last stage from Cramlington to Renfrew during the King's Cup Race caused great anxiety to all Members, and search patrols were instituted along the course into the Border country. These were only abandoned when news arrived that Mr. Warwick had crashed near Peebles with fatal results.

To Mrs. Warwick and family, we tender our deepest sympathy.

The Yorkshire Aeroplane Club.

[Sec.: Lt.-Col Walker, Sherburn-in-Elmet.]

Report for fortnight ending July 21.

Flying Time 76 hr. *Instruction* 24 hr. 40 min. *Soloists* 43 hr. 35 min. *Passengers* 7 hr. 45 min. *Instruction.—With Mr. Beck*—Miss Ellison, Messrs. Lievens, Wilton, Parks, Ostler, Marriott, Arundel, Rowley, Pomeroy, Daly, Lloyd, Dujardin, A. Crowther, Fitton, Jackson, Batcock, Collins, Shires, Leetham, Senior, Watson, Lupton, Ambler, Brown. *Soloists.*—Mr. Brown. *"A" Licence Pilots.*—Messrs. Clayton, Thompson, Ambler, Humpheries, Norway, Wilson, Ostler, Lax, Lister, Ely, Birch, Ellison, Wood, A. Crowther, Dawson, Reynolds, Dick. *"B" Pilot.*—Mr. Fielden. *Passengers.*—27.

Included in the above flying times is our record week of 48 hr. 50 min., but during the latter week we have been reduced to one machine, RF having completed its time for C. of A., and TB having run a Master Connecting Rod as a result of the heat wave.

On Friday, July 20, some 2,000 people visited the Aerodrome to watch the King's Cup machines on their way North.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Report for week ending July 21.

Flying Time 42 hr. 42 min. *Instruction.—With Flt. Lt. T. Rose, D.F.C., and Mr. W. H. Sutcliffe*—22. *Soloists under instruction.*—21. *Passengers.*—13.

On Tuesday Mr. G. C. Jones successfully made his first solo flight.

During the week three members passed all tests for their "A" Licences.

On Thursday, Flt. Lt. Rose flew "XT" to Stag Lane to have a new petrol tank fitted.

The Castle Bromwich control for the King's Cup Race appeared to work quite smoothly. The ultimate winner of the race was heard "whispering" his opinion of the previous control in strictly Biblical language. We have not yet heard what he said about us on arrival at Nottingham.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, The Aerodrome, Hamble.]

Report for week ending July 20.

Flying Time 66 hr. 20 min. *Instruction* 35 hr. 30 min. *"A" Pilots* 11 hr. 55 min. *Soloists* 1 hr. 25 min. *Passenger Flights* 7 hr. *Tests* 1 hr. 30 min. *Instruction.—With Flt. Lt. Swoffer and Mr. W. H. Dudley*—Mr. Westlake, Major Jenkins, Mr. Dalrymple Smith, Mr. Walker, Mr. Beagley, Mr. Sturge, Lt. Mandeville, Dr. Russell, Mr. Tobutt, Mr. Mole, Mr. R. King, Miss Melvill, Sq. Ldr. Bradyll Johnson, Mr. Buckley, Lt.-Cdr. Coveney, Mr. Neave, Mr. Wells, Mr. Robertson, Mr. Curtis Nuthall, Miss Grace, Mr. Berney, Mr. Kerry, Mr. Craske, Lt. Dallmeyer, Mr. Fletcher, Mr. Goldman, Mr. Colls, Mr. Phillimore, Mr. Somerset, Flt. Lt. D'Aeth, Lt. Townsend, Mr. Knight, Mr. Turner, Mr. Reuther, Mr. T. Martin, Mr. Brewster, Mr. W. Martin, Mr. Agar, Mr. Redwood, Lt. Donner, Mr. Brodrick, Mr. J. S. M. Richards, Mr. Farmer, Comdr. Bell. *"A" Pilots.*—Capt. Kirby, Mr. Baynes, Lt. Heath, Lt. Fagan, Mr. Parker, Mr. Michelmore, Don J. de la Cierva, Flg. Off. Mellor, Lt. Collier, Flt. Lt. Crawford. *Soloists.*—Mr. Perfect, Mr. Fawkes, Mr. H. King, Mr. Scott-Hall, Mr. Wells, Mr. Larden, Mr. Curtis-Nuthall, Mr. Wills, Mr. Kerry, Flg. Off. Tillard, Mr. Whittle, Major Jenkins, Mr. Colls, Mr. Westlake, Lt. Townsend, Flt. Lt. D'Aeth. *Passengers.*—31.

Major Jenkins and Mr. Colls achieved successful first solos. The former instead of doing one circuit, as instructed, in his keenness did four. The ladies present said they were glad the engine was running and the Chief Instructor tackled him on his arrival. We did not hear, but can imagine, what he said.

King's Cup Air Race.

A small but enthusiastic crowd turned up on Saturday to watch the arrivals in the King's Cup Race.

Miss Spooner was the first to land and she was followed shortly afterwards by Mr. Hope, the eventual winner.

Keen interest was displayed when Flt. Lt. Webster arrived on the Spartan.

It was seen that the Avenger, the fastest machine in the rac had no chance of overtaking the leaders.

We extend our congratulations to Mr. Hope on winning th race and to Miss Spooner on securing the Siddeley Trophy.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending July 22.

Flying Time 4 hr. 40 min. *Instruction.—With Mr. Young*—Messr C. Bethell, A. Richardson, C. C. White, C. Mills, A. Kirkby K. Wharton. *Soloists.*—Messrs. G. Barker, C. C. White, A. Coope E. Lambert. *Passengers.*—2.

A member came into the Club the other evening and said he ha made a "good landing." It was most decidedly a "good" one an now we have no Moth for a time. Following this a slight unde carriage trouble to the Avian packed up our flying for the re of the week. Flying luck appears to run in cycles, sometimes a smoothly and then everything goes wrong. However these thing will occur sometimes and we have to make the best of them.

Heartiest congratulations to Mr. Hope on winning the King's Cup fo the second year and also to Miss Spooner for the very fine show sh put up. We noticed at Norwich how very particular she was in the refuelling and oiling her Moth, not until this was done to her satisfaction did she rest.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. F. G. Crawford, Filton Aerodrome, Bristol.]

Report for week ending July 21.

Flying Time 28 hr. *Instruction* 8 hr. 40 min. *Passengers—70 flight* 8 hr. 10 min. *Cross-Country—1 flight* 1 hr. 30 min. *Instruction.—Wit Mr. Tratman*—Messrs. Amory, Lysaght, Allinson, Singh, Keeling, an Putnam. *With Mr. Travers*—Miss Miles, Messrs. Harris, Hall Bathurst, Neale, Singh, Warren, Chopra, Lysaght, Keeling, Greenhill and Laws. *Soloists.*—Messrs. Downes-Shaw, Hall, Bathurst an Jopp.

On Tuesday our deputy instructor, Mr. H. G. Travers, flew here i a machine recently acquired by one of our members. He bega his work of instruction on Wednesday.

Ideal weather favoured us for the King's Cup Race. The firs arrival here was Miss Spooner, whom we congratulate on winning th Siddeley Trophy. Our own representative, Mr. A. S. Butler, was 5t in the King's Cup and second in the Siddeley Trophy. Anothe Bristol representative was Mr. C. F. Uwins who, though delayed a the beginning, came in 2nd. But for the delay he would probabl have won. It was a notable performance on his part.

At 17.30 hr. on Saturday Mr. Downes-Shaw left in G-EBYH, wit Lord Apsley as passenger, for Andover, which was reached in 4 minutes. The return journey occupied 50 minutes.

The Winnipeg Flying Club.

[Sec.: F. D. Bradbrooke, 903, Lindsay Buildings, Winnipeg.]

Report for week ending July 1.

Flying Time for the week was 34 hr. 22 min., making a total fo the Club of 139 hr. 7 min. Of this week's time just about 24 hours wer occupied with dual instruction, 8¼ hours with members' solo, an 50 minutes with passenger flying.

Five members, club-trained *ab initio*, were sent solo, these bein Miss Magill, Bradbrooke, Alleyn, Brookes and Haldane. Solo flyin was also done by Crabbe, Huggard, Morgan, Partridge, and Straith.

Passenger flights were taken by three members, Mrs. Crabbe, Mrs Straith and Mrs. Parkill.

Dual instruction was given to Alleyn, Antonbring, Bradbrooke Barker, Barager, Brookes, Furnival, Grainger, Haldane, Longley, McFarlane, MacBean, MacDougall, Miss Magill, Nanton, Mrs. Oakes Parkhill, Crosby, Patterson, and Thomas.

The engine of G-CAKB was given a top overall, having run u 155 hours in five weeks. The Club's second Moth, G-CAKU, wa delivered, rigged and tested, so that two machines are now in regula use.

The Victoria Aero Club.

[Sec.: Sydney H. Pickles, A.F.R.Ae.S., 208, Union Building, Victoria, B.C.]

The Victoria Aero Club started active flying work at the beginnin of July. Credit for this is chiefly due to the untiring efforts of it Secretary, who has been entirely responsible for organising the Clu and obtaining the guarantee of $4,000 required by the Dominio Government towards the D.H. Moth allotted to the Club. A Directors Meeting was held on July 5, at which a resolution was passe making the following persons Honorary Life Members of the Clu in return for financial assistance and services rendered in the formation of the Club: Major-General J. H. MacBrien, C.B., C.M.G., D.S.O. the Hon. Walter Nichol, Mr. Sydney Pickles (Secretary), and Messrs D. W. Hanbury and V. S. Stewart MacLeod. Materials for the Club's hangar were donated by various public-spirited firms in Victoria, an the hangar was designed by Mr. Pickles, who also assisted in th building, labour for which was supplied entirely voluntarily by members of the Club. B.C. Airways Ltd. have given free use of their aerodrome for the Club until February, 1929. The total membership o the Club is already 100, 42 of whom require flying instruction. Mr Pickles is acting Honorary Secretary and Instructor until such tim as his combined duties become too arduous. With such willing an enthusiastic supporters the Club should soon be firmly on its fee and one hopes to be able to publish reports of its flying hours comparable to those of the British Flying Clubs.

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— *CAPT. W. L. HOPE (winner of the 1928 King's Cup Race), on the Gipsy engine fitted in his G. Type Moth.*

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 14; Monday, 39; Tuesday, 35; Wednesday, 36; Thursday, 36; Friday, 38; Saturday, 41.

Imperial Airways Ltd.:
London—Paris—Zurich: London—Ostend—Brussels—Cologne and return: Machines 84, passengers 821, freight 27 tons.

Air Union:
Paris—London and return: Machines 57, passengers 438, freight 14 tons.

K.L.M.:
Amsterdam—Rotterdam—London and return: Machines 37, passengers 314, freight 6½ tons.

Sabena:
Brussels—London and return: Machines 14, passengers 119, freight 2 tons.

Deutsche Lufthansa AG.:
Amsterdam—London and return: Machines 28, passengers 98, freight 5 tons.

Private:
Machines 19, passengers 21.

Total number of trips by British Machines 99, carrying 830 passengers. Foreign Machines, 140, carrying 972 passengers.

Note.—Over and above the traffic listed above from the London Terminal Aerodrome, the K.L.M. have run 11 machines carrying 3⅞ tons of newspapers between Lympne and Ostend.

COMPARATIVE FIGURES.

Week ending July 21:
Machines, 239; Passengers, 1,802; Crews, 451; Total personnel, 2,253.
Corresponding week, 1927:
Machines, 167; Passengers, 1,313; Crews, 328; Total personnel, 1,641.
Corresponding week, 1926:
Machines, 170; Passengers, 1,243; Crews, 215; Total personnel, 1,453.
Corresponding week, 1925:
Machines, 152; Passengers, 894; Crews, 213; Total personnel, 1,107.
Corresponding week, 1924:
Machines, 207; Passengers, 1,055; Crews, 255; Total personnel, 1,310.
Corresponding week, 1923:
Machines, 122; Passengers, 565; Crews, 212; Total personnel, 777.
Corresponding week, 1922:
Machines, 159; Passengers, 366; Crews, 251; Total personnel, 617.
Corresponding week, 1921:
Machines, 101; Passengers, 460; Crews, 126; Total personnel, 586.
Corresponding week, 1920:
Machines, 82; Passengers, 175; Crews, 104; Total personnel, 279.

Croydon Notes.

Traffic this last week has exceeded even last week's record figures and if the fine weather continues for a little longer it looks as though the 2,000 passenger mark will be reached very shortly.

One unpleasing feature of the increase during the pa
week is that more than the whole increase in passeng
traffic has been caused by a rise in the passengers carri
on foreign aircraft, which have this time carried more th
half the total number of passengers. [Presumably becau
the British machines have been full up for weeks, and t
excess passengers have to go in foreign machines whi
have hitherto been empty.—Ed.]

During this week thirty-seven American art studen
booked their passage to Paris by Imperial Airways as a part
Two Argosies were needed to carry them. It is a curio
fact that one of these Argosies was filled exclusively
women students, all the mere males being segregated
the second machine.

Three D.H. Moths (Cirrus engines) for the use of t
Spanish Royal Aero Club left Croydon on Wednesday, Ju
18. They departed, and arrived at Le Bourget, in formatio

Quite large consignments of silver in ingot form have be
reaching this country recently from France. After the rece
rush to the Bank of France to change hoarded gold coi
some influx of gold might have been expected—but w
silver?

The Aerodrome Hotel was the scene of an official openi
on Friday. Sir Samuel Hoare, Secretary of State for A
formally declared the hotel well and truly opened, a
many of those who are concerned with Civil Aviation, bo
at Croydon and elsewhere, were entertained by Barcla
Perkins and Co. Ltd. to lunch.

The only complaint that has been made so far concerni
this ceremony is that those members of the aerodrome st
who were not invited to the lunch found great difficulty
purchasing food or other refreshment in the ordina
way.—W. H. S.

Slotted Wings on Civil Machines.

The Secretary of State for Air, in reply to a question
Capt. Garro-Jones in the House of Commons on July 18, sa
that the Vickers-Vulcan which crashed on July 13 was r
fitted with the slotted-wing device.

Certain new machines on order for Imperial Airways L
were to be fitted with this safety device, but none of t
machines now in use were so fitted.

Sir Samuel Hoare added that he thought there was
difference between the use of the slotted wing in the ca
of Service machines and its use in the case of civil machin
The fact that 3,000,000 miles had been flown without serio
accident to any passenger differentiated the civil machin
from the Service machines.

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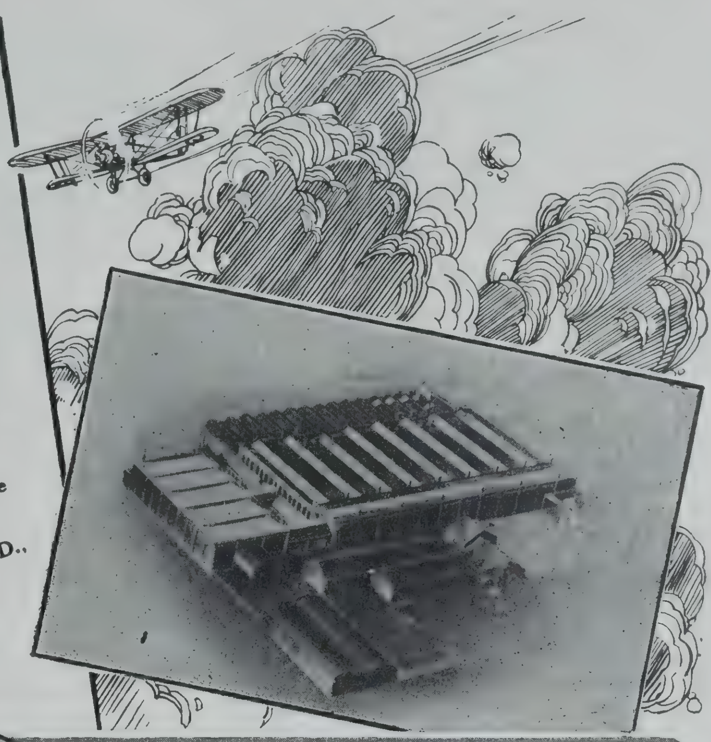

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C.F.H. 56

[There is a proverb about horses and stable doors which might be taken to heart by those concerned officially or commercially with Civil Aviation. The Vickers-Vulcan was an ancient freighter and as such was hardly worth the expense of fitting with slots,—though, after all, the lives of the employees of Imperial Airways Ltd. are worth as much to them as are the lives of paying passengers, or perhaps more. But the best of pilots sometimes make mistakes, or may faint in the act of landing. And this particular machine had in fact been refitted with seats for the passenger service. So slots should have been fitted, if only as an insurance on the lives of passengers.—C. G. G.]

POLAR EXPLORATION AND AIRSHIP DOPE.

There seems to be a good deal of controversy among technical people on the subject of the kind of dope most suitable for airships in various parts of the World under varying conditions. The debate has apparently arisen largely out of the loss of General Nobile's ill-fated Italia.

Rumour has it that the fabric of the *Italia* was treated with acetate dope of French origin, and among some technical people the opinion is expressed that this species of dope is particularly liable to absorb moisture from the air. If that be so, the sinking of the *Italia*, owing to the ship growing heavier and heavier, in spite of the best efforts of her crew, would be easily explained.

Against this rumour the statement is made that our rigid airship, R.34, which flew across the Atlantic and back, was treated with an acetate dope. But that dope was of British manufacture and was not liable to absorb moisture to the same extent as some of the Continental acetate dopes. On the other hand the opinion is expressed that the only reliable dope for airships is some species of nitro dope, as this particular type is not at all liable to absorb moisture.

Nitro dope has been used for years on British aeroplanes and one is told that it is used by the Germans in their big airships. So just what objection there could be to using nitro dope on the Italian airship one cannot quite explain.

However, one commends to the Italian authorities, who must naturally be interested in clearing up the reason for the wrecking of the *Italia* and the loss of so many lives, that they should investigate carefully the whole subject of acetate versus nitro dopes. And one further suggests that if independent investigation proves nitro dope to be the more desirable, some steps should be taken to discover why this particular kind of acetate dope was used.

A FLY IN THE OINTMENT.

The Equity Court in Sydney has granted an injunction restraining Capt. Kingsford Smith and Mr. C. P. Ulm from dealing in any way with the "Southern Cross," the Fokker monoplane in which they flew from San Francisco to Sydney across the Pacific.

Lieut. Keith Anderson claims a share of the profit of the flight and also a share in the aeroplane, alleging that he entered into a partnership with Capt. Kingsford Smith in July, 1927, for the purpose of the trans-Pacific flight.

Capt. Kingsford Smith refuses to recognise any such claim, and maintains that the machine was a personal gift to them from their American backer.

CONCERNING THE SPARTAN.

Mr. O. E. Simmonds desires to announce that he has severed his connection with the Supermarine Aviation Works and that all communications with reference to the "Simmonds Spartan" and the "Simmonds Interchangeable Wings" should be addressed to "Holmfels," Woolsto Hants.—'Phone Woolston 176.

BY ERROR, AGAIN.

In THE AEROPLANE of July 18 the statement was made th a two-seater light seaplane piloted by Lady Heath had p up a height record in the new F.A.I. class for light tw seater seaplanes.

Apparently this announcement was at least prematur The Royal Aero Club states that the machine was 60 lb above the weight permissible in the light seaplane cla and that therefore no record can be claimed for it.

Readers should note that the attempt was not one to be a record but merely to establish a record which hither had not existed. At the same time it is regrettable th those who claim to set up records are not more careful study the rules and regulations.

Some time age a claim was made that the height recor for light aeroplanes (land) had been broken and grea publicity was made out of it,—only to be rudely shattered b an official statement that correction of the instrumen showed that the much-advertised new record equalled th existing record without beating it.

PERSONAL NOTICES.

BIRTHS.

ADDIS.—On July 18, at Manor Way, Ruislip, Middlesex, to Kathlee wife of Edward Addis, Flg. Off., R.A.F.—a daughter.

ANDERSON.—On July 14, at The Kashmir Nursing Home, Srinaga to Alma Birge (*née* Chamberlain), wife of Flt. Lt. David Forgha Anderson, D.F.C., R.A.F.—a son.

CUNNINGHAM-REID.—On July 17, at Brook House, Park Lane, t Mary, wife of Capt. Cunningham-Reid, D.F.C., M.P.—a son.

LAWSON.—On July 16, to Dora, wife of Flt. Lt. G. M. Lawso M.C., R.A.F.—a son.

PRICE.—On July 15, at Chester, to Margaret, wife of C. W. Pric Flg. Off., R.A.F.—a son.

SCARROTT.—On July 20, at Cross Roads, Carrie, to Idonea, wi of George Scarrott, Flg. Off., R.A.F.—a daughter.

DEATH.

WARWICK.—On July 20, in an aeroplane accident near Peeble G. N. Warwick, of Mill House, Harpenden.

[The late Mr. Warwick was educated at Uppingham and as soo as he became of military age during the War he went to Sandhurs whence he joined the Indian Army. On being demobilised afte the War he studied for the Bar and later went into the Rubber Trad Being keenly interested in aviation he joined the R.A.F. Reserve Officers in 1926 and subsequently did his training course at th Blackburn School at Brough. He joined the London Aeroplane Clu and was the first Member to qualify for an "A" certificate.

Both at Brough and at Stag Lane he was considered quite a com petent pilot. With all his experience of other professions he wa intensely keen on becoming a professional civil aviator, and with tha end in view he studied for and passed the examination for a 2n Class Air Navigation Certificate in April.

He was a clever and ambitious man and given opportunities h would assuredly have made his mark in the World. For though hi prime interest was aviation his outlook was far bigger than tha of the ordinary paid pilot. To his wife and family one offers th deepest sympathy.—C. G. G.]

FORTHCOMING MARRIAGE.

STOCKEN-OLIVER—The engagement is announced of Capt. Reginal Herbert Stocken, R.A.F.O., elder son of the late Mr. and Mrs. A. H Stocken, of Streatham, and Enid Margaret, elder daughter of the Rev A. C. and Mrs. Oliver, of Fretherne Rectory, Gloucestershire.

MARRIAGE.

VOLKERT—HALEY.—On July 21, at Isleworth, George R. Volkert, o Grove Park, W., to Violet E. Haley, of Hurlingham.

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L'ÉVOLUTION DU BIPLAN LE PLUS RAPIDE DU MONDE.
LA EVOLUCIÓN DEL BIPLANO MÁS VELOZ DEL MUNDO.

LE développement des engins de course, qu'ils soient appelés à circuler sur terre, ur mer ou dans les airs, a con-ribué plus que tout autre facteur u perfectionnement de l'automobile, lu canot à moteur et—plus récem-nent—de l'avion. En effet, les xigences des épreuves de vitesse ure sont telles qu'elles mettent mmédiatement en lumière les points aibles du dessin et de la structure, e qui a pour résultat de hâter le rogrès.

Or, la Gloster Aircraft Company su reconnaître ce fait peu après es premiers débuts, et, dès 1921, lle entreprit tout un programme 'expériences intéressant les avions le course, programme ayant beau-oup contribué au prestige de aéronautique anglaise ainsi qu'au rand succès de cette société, dans

THE development of racing craft, whether for land, water or air, has contributed more than anything else to the perfection respectively of the motorcar, the motorboat and the aeroplane of to-day. The exigencies of pure speed tests are such as to show up at once the weak points of the craft in design and structure and so accelerate progress.

The Gloster Aircraft Company recognised this fact very early in their career, and in 1921 they launched upon a programme of experiment with racing aircraft, which has contributed considerably to British prestige in the air and incidentally to the great success of the firm in producing efficient service aircraft.

The following pages give a brief survey of the firm's efforts

EL desarrollo de los aparatos de carrera, ya sean para los fines terrestres, acuáticos o aéreos, ha sido uno de los factores que más ha contribuido a la perfección del automóvil, la lancha automóvil y el aeroplano de la actualidad, respectivamente. Las exigencias de las pruebas puramente de velocidad son tales que en seguida ponen de manifiesto todos aquellos factores del diseño y la estructura del aparato que son susceptibles de mejoramiento, pudiéndose así acelerar el progreso de los adelantos.

Este es un hecho que fué reconocido desde hace mucho tiempo por la Sociedad Gloster Aircraft Company, y en el año 1921 ya se había embarcado en un programa de experimento con aviones de carrera, los cuales han contribuido material-la construction d'appareils donnant un haut rendement effectif en service.

Aux pages suivantes, se trouve un résumé succinct des efforts tentés par cette société dans ce sens, efforts qui l'ont ultérieurement menée à la construction du biplan le plus rapide du monde, à savoir le GLOSTER IV, appareil qui, comme rendement aérodynamique et comme exécution, n'a probablement jamais été excellé.

Le progéniteur de cette longue série d'appareils de course Gloster avait été le célèbre "Mars I" ou "Bamel," avion construit pour le Derby Aérien de 1921, doté d'un moteur Napier Lion, et qui fut le premier appareil anglais conçu tout spécialement pour faire de la vitesse. Il gagna d'ailleurs la course et le handicap, à la vitesse moyenne sur le circuit de 262 km. 322 à l'heure. Plus tard, la même année, il porta le record anglais de la vitesse à 316 km. 396 à l'heure.

The Aerial Derby Trophy won by the Gloster Company on the "Gloster I" in 1923.
Trophée du Derby Aérien remporté par la Gloster Company sur l'appareil "Gloster I" en 1923.
Trofeo del Derby Aéreo ganado por la Gloster Company en el aparato "Gloster I" en 1923.

Après avoir subi certains épurements, le "Bamel" s'inscrivit pour le Derby Aérien de 1922, épreuve qu'il gagna à nouveau, à la vitesse moyenne de 285 km. 738 à l'heure. Plus tard dans la même année, à l'Aérodrome de Villesauvage (Etampes), il avait atteint la vitesse de 341 km. 503, sur un kilomètre officiellement chronométré, et ce fut donc le premier avion anglais qui dépassa le chiffre tant désiré de 200 milles (320 kms.) à l'heure.

En 1922, muni d'ailes de plus grandes dimensions, le "Bamel"

in this direction, which have culminated in the world's Fastest Biplane, the Gloster IV, which for aerodynamical efficency and workmanship is perhaps unsurpassed.

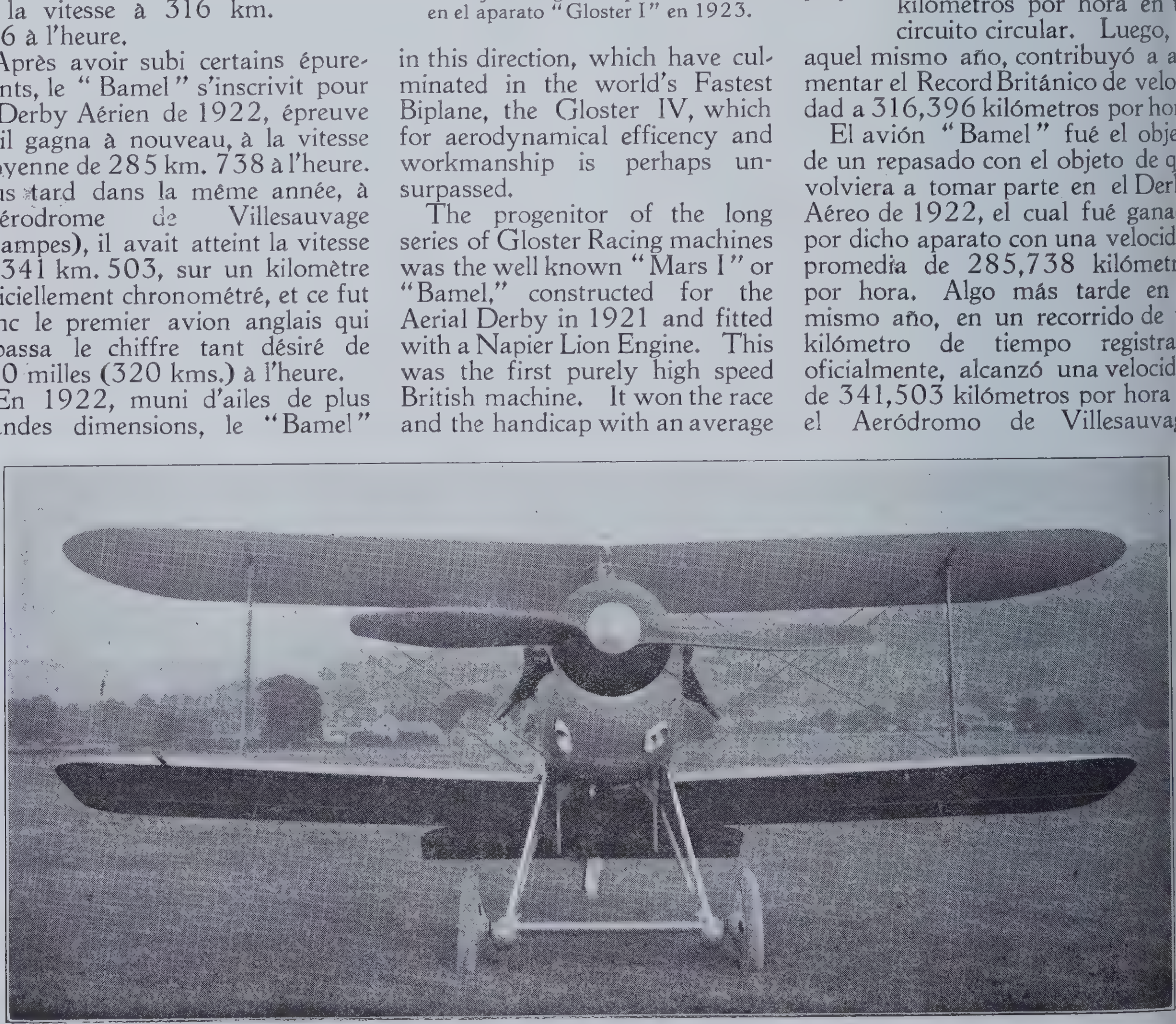
The progenitor of the long series of Gloster Racing machines was the well known "Mars I" or "Bamel," constructed for the Aerial Derby in 1921 and fitted with a Napier Lion Engine. This was the first purely high speed British machine. It won the race and the handicap with an average

mente a mantener el prestigio británico en el aire e, incidentalmente, a proporcionar el gran éxito de dicha sociedad en la producción de aviones de servicio eficiente.

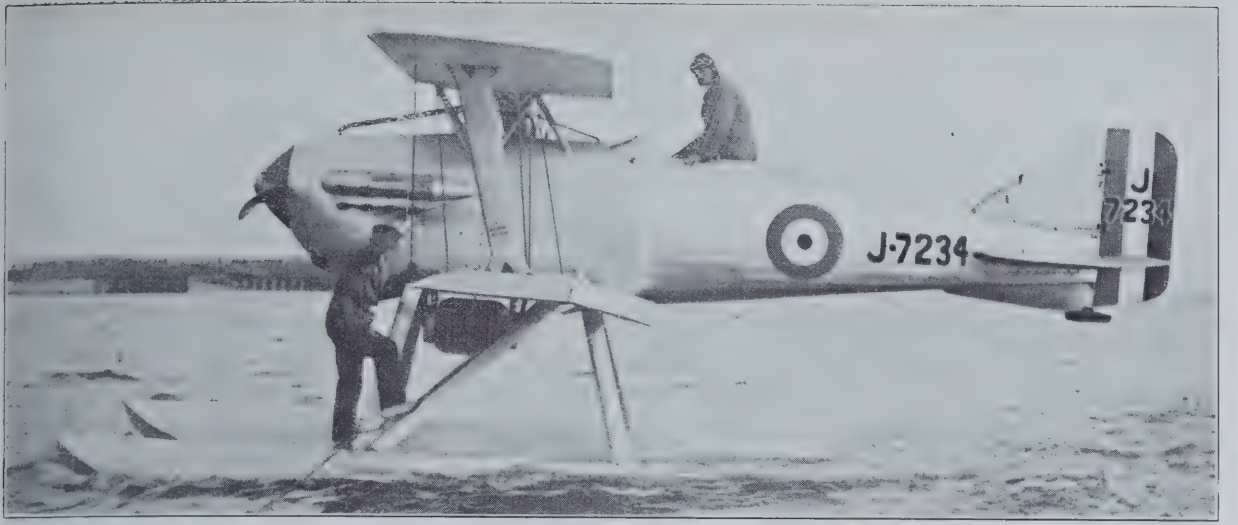
En las páginas que siguen se facilita una historia breve de los esfuerzos hechos por la casa en este sentido, cuyos esfuerzos han culminado en la producción del Biplano más veloz de mundo entero, a saber, el Gloster IV, que quizás no tiene rival por lo que se refiere a eficiencia aerodinámica y a mano de obra.

El precursor de la larga serie de Aviones Gloster de Carrera fué el celebrado "Mars I" o "Bamel" que fué construído para tomar parte en el Derby Aéreo de 1921 y fué provisto de un motor Napier Lion. Esta fué la primera máquina que fué construída en Inglaterra puramente para los fines de alcanzar una gran velocidad. El aparato ganó la carrera y el handicap con una velocidad promedia de 262,322 kilómetros por hora en un circuito circular. Luego, en aquel mismo año, contribuyó a aumentar el Record Británico de velocidad a 316,396 kilómetros por hora.

El avión "Bamel" fué el objeto de un repasado con el objeto de que volviera a tomar parte en el Derby Aéreo de 1922, el cual fué ganado por dicho aparato con una velocidad promedia de 285,738 kilómetros por hora. Algo más tarde en el mismo año, en un recorrido de un kilómetro de tiempo registrado oficialmente, alcanzó una velocidad de 341,503 kilómetros por hora en el Aeródromo de Villesauvage



The first Gloster Racing Machine, the "Mars I" or "Bamel" (Napier Lion Engine).
Premier appareil de course Gloster, le "Mars I" ou "Bamel" (Moteur Napier Lion).
El primer aparato Gloster de carrera, el "Mars I" o "Bamel" (Motor Napier Lion).



The preliminary Training Machine of the Schneider Trophy Team, the "Gloster I" on floats (Napier Lion Engine).
Appareil d'entraînement préliminaire de l'équipe de la Coupe Schneider, le "Gloster I" sur flotteurs (Moteur Napier Lion).
El aparato de enseñanza preliminar del team del Trofeo Schneider, el "Gloster I" sobre flotadores (Motor Napier Lion).

agna l'altitude de 5.943 m. 60 en 1 minutes 34 secondes, ascension raiment phénoménale.

C'est en 1923 que se construisit Gloster I, et, pour la troisième ois de suite, la marque s'adjugea la remière place au Derby Aérien, à a vitesse moyenne de 309 km. 37 à l'heure. D'ailleurs, cet ppareil, monté sur flotteurs, est oujours en service pour l'entraîne- nent des pilotes de la Coupe chneider, témoignage des plus loquents à l'excellence de la cons- ruction Gloster.

Malheureusement, cette épreuve e s'est plus courue depuis, par uite du manque d'aérodromes ppropriés pour appareils aussi apides.

La Gloster Company décida donc e construire une machine destinée participer à la Coupe Schneider, preuve avec laquelle la marque n'a essé de s'identifier étroitement

speed over the circular course of 163 m.p.h. Later in that year it raised the British Speed Record to 196.6 m.p.h.

The "Bamel" was cleaned up and again entered for the Aerial Derby in 1922, which it won at an average speed of 177.55 m.p.h. Later in that year at Villesauvage Aerodrome, Etampes, it attained a speed over an officially timed kilometre of 212.2 m.p.h., the first British machine to touch the 200 m.p.h. mark.

Fitted with larger wings the "Bamel" in 1922 made a phenomenal climb of 19,500 ft. in 11 mins. 34 secs.

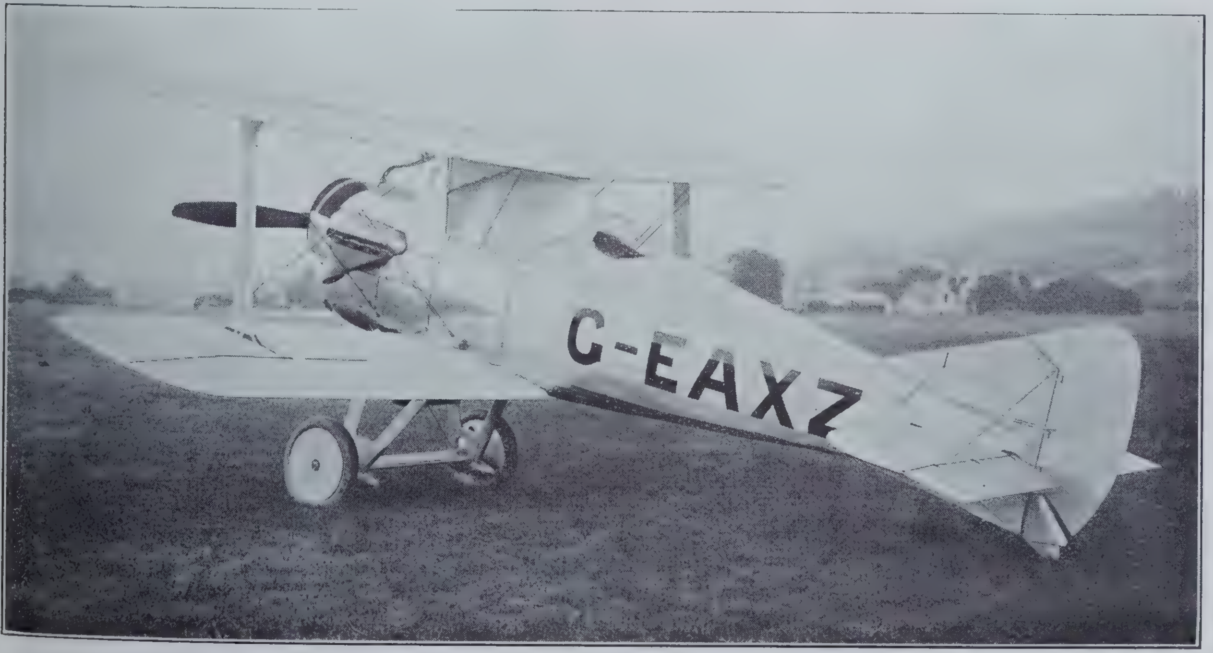
In 1923 the Gloster I was constructed and, for the third time in succession, the Aerial Derby was won at an average speed of 192.4 m.p.h. This machine, erected on floats, is still

Etampes, siendo ésta la primera vez que un avión británico alcanzara la cifra de 320 kilómetros por hora.

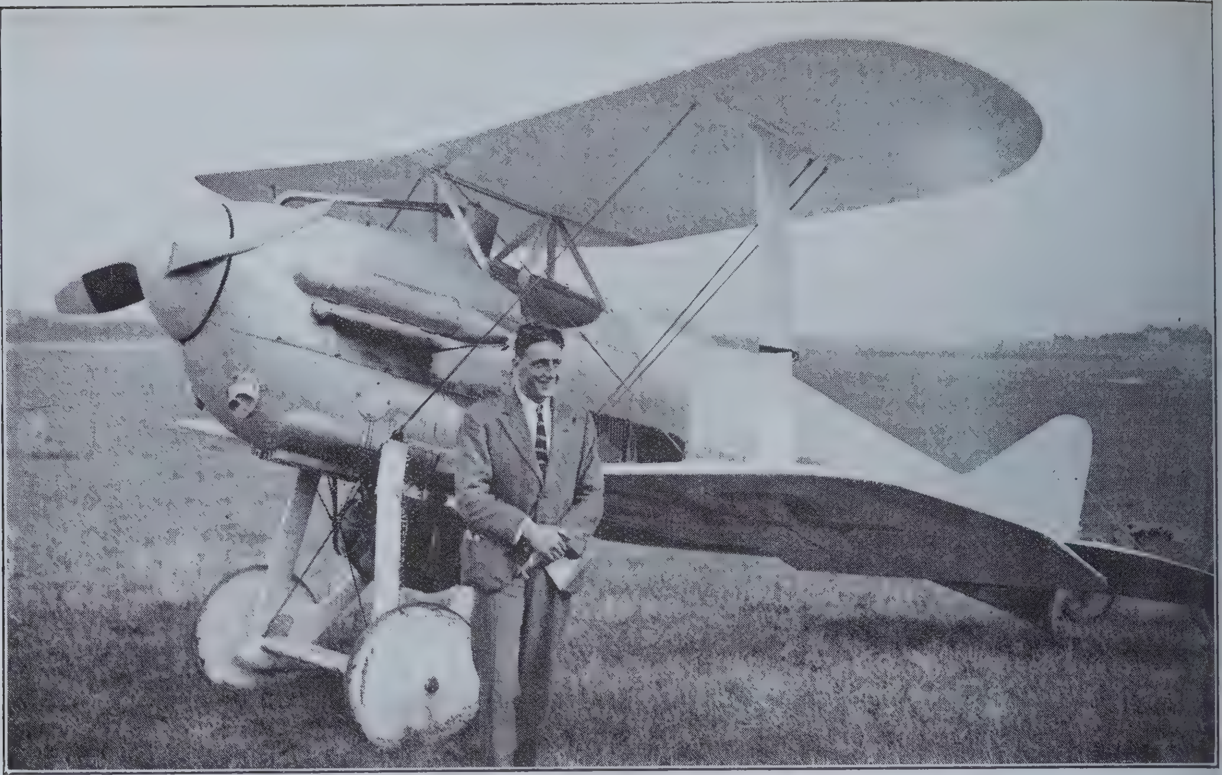
En 1922 el avión "Bamel," provisto de alas más grandes, hizo un ascenso fenomenal de 5.943,60 metros en 11 minutos y 34 segundos.

En el año 1923 fué construído el Gloster I, y por tercera vez en sucesión el Derby Aéreo fué ganado a una velocidad promedia de 309,637 kilómetros por hora. Este aparato, montado sobre flotadores, todavia está prestando servicio como máquina de práctica para los pilotos que más tarde han de tomar parte en el Trofeo Schneider, lo cual constituye un tributo a la mano de obra de la Sociedad Gloster.

Desgraciadamente, desde aquella fecha no se ha vuelto a correr dicha carrera aérea por falta de Aeródromos apropiados para máquinas de alta velocidad.



The Gloster "Mars I" or "Bamel" (Napier Lion Engine).
L'appareil Gloster "Mars I" ou "Bamel" (Moteur Napier Lion). El aparato Gloster "Mars I" o "Bamel" (Motor Napier Lion).



The "Gloster I" with pilot, the late Mr. Larry Carter, after winning the Aerial Derby in 1923.
L'appareil "Gloster I" avec son pilote, feu Mr. Larry Carter, après avoir gagné le Derby Aérien en 1923.
El aparato "Gloster I" con su piloto, el finado Mr. Larry Carter, después de haber ganado el Derby Aéreo en 1923.

depuis. Le Gloster II se construisit en 1924, mais en raison d'un léger accident survenu pendant les essais il fallut annuler l'inscription.

Cette construction fut suivie en 1925 par celle du Gloster III, appareil classé second à la course de Baltimore (Etats-Unis), à la vitesse moyenne de 321 km. 869 à l'heure, chiffre n'ayant d'ailleurs pas donné la pleine mesure de l'appareil, puisqu'à certains essais

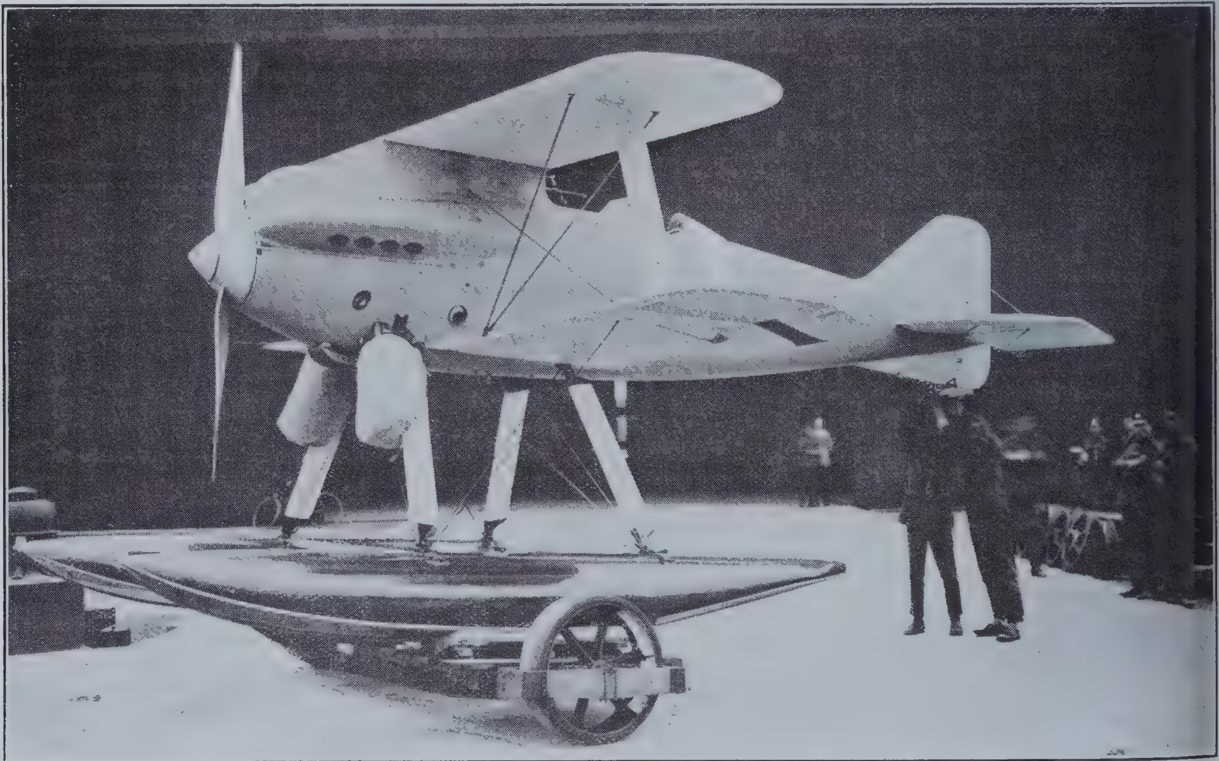
in service as a practice machine for Schneider Trophy pilots, a tribute to Gloster workmanship.

The Aerial Derby has unfortunately not been run since owing to the lack of suitable Aerodromes for high speed machines.

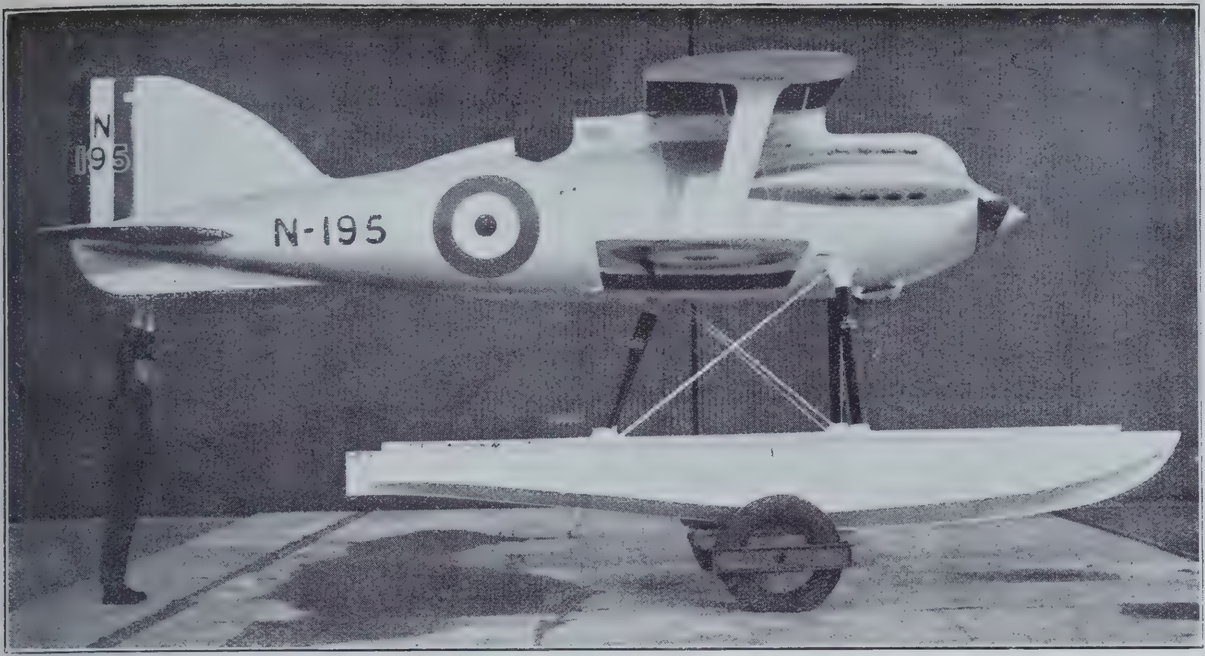
The Gloster Company therefore decided to construct a machine for the Schneider Trophy Race, with which they have been very closely identified ever since.

Por consiguiente, la Socieda Gloster se decidió construir u avión para la Carrera por el Trofe de Schneider, con la cual ha estad relacionada muy estrechament desde aquel entonces. El aparat Gloster II fué construído en 192 pero, debido a un percance durante la pruebas, tuvo que anularse la entrada

Este fué seguido en 1925 por avión Gloster III el cual entr segundo en la carrera en Baltimore



The "Gloster II" (Napier Lion Engine).
L'appareil "Gloster II" (Moteur Napier Lion). El aparato "Gloster II" (Motor Napier Lion).



The "Gloster III" (Napier Lion Engine) which finished second in the Schneider Trophy Race, U.S.A., 1925.
L'appareil "Gloster III" (Moteur Napier Lion) qui s'est classé second, à la course de la Coupe Schneider de 1925, aux Etats-Unis.
l aparato "Gloster III" (Motor Napier Lion) que entró segundo en la carrera para el Trofeo de Schneider en 1925, en los Estados Unidos.

ltérieurs il a pu atteindre 376 km.
86 à l'heure. A présent, le
Gloster III s'utilise comme appareil
ntermédiaire pour l'entraînement
e l'équipe anglaise de la Coupe
chneider.

La création la plus récente à ce
our de la Gloster Company n'est
utre que le Gloster IV, machine
onstituant un exemple sans paral-
èle de merveilleuse ingéniosité
nécanique. Cet appareil, piloté par
eu le Lieutenant Kinkead, D.S.O.,
.S.C., D.F.C., R.A.F., a participé
la Coupe Schneider, à Venise en
927, et sa vitesse moyenne sur le
our le plus rapide avait été de
45 km. 786 à l'heure. A cause
e certains ennuis provenant du
oteur, cette vitesse est restée con-
idérablement inférieure à l'allure

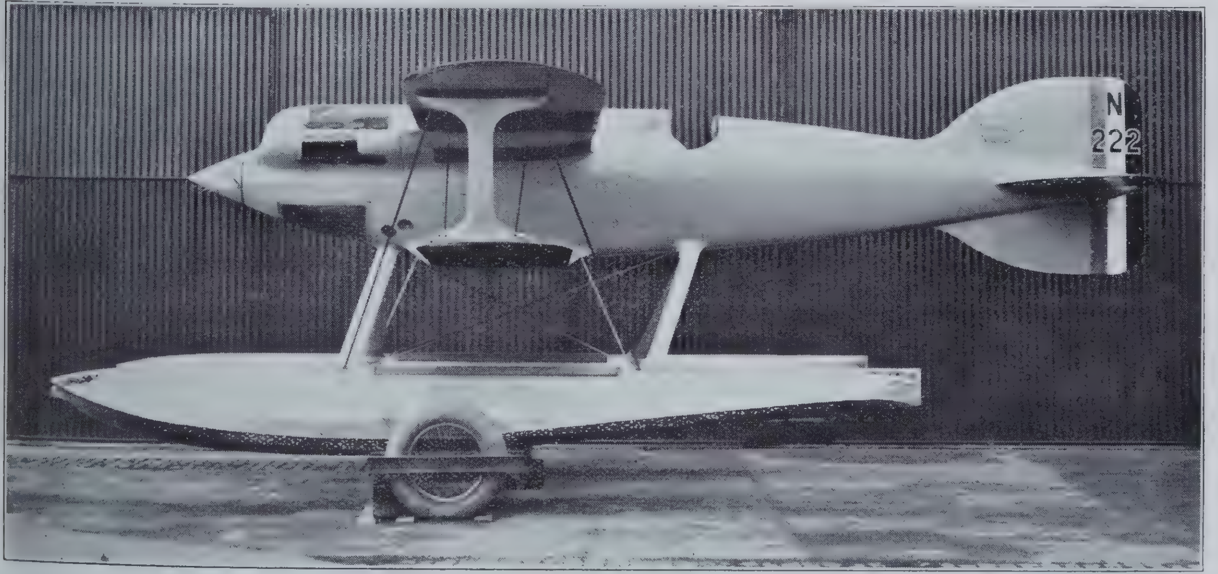
The Gloster II was produced in 1924, but owing to a mishap during the trials, the entry had to be cancelled.

This was followed in 1925 by the Gloster III which finished second in the race at Baltimore, U.S.A., with an average speed of 200 m.p.h. This speed did not represent the full possibilities of the machine, and at subsequent trials a speed of 234 m.p.h. was attained. The Gloster III is now an intermediary training machine for the British Schneider Trophy Team.

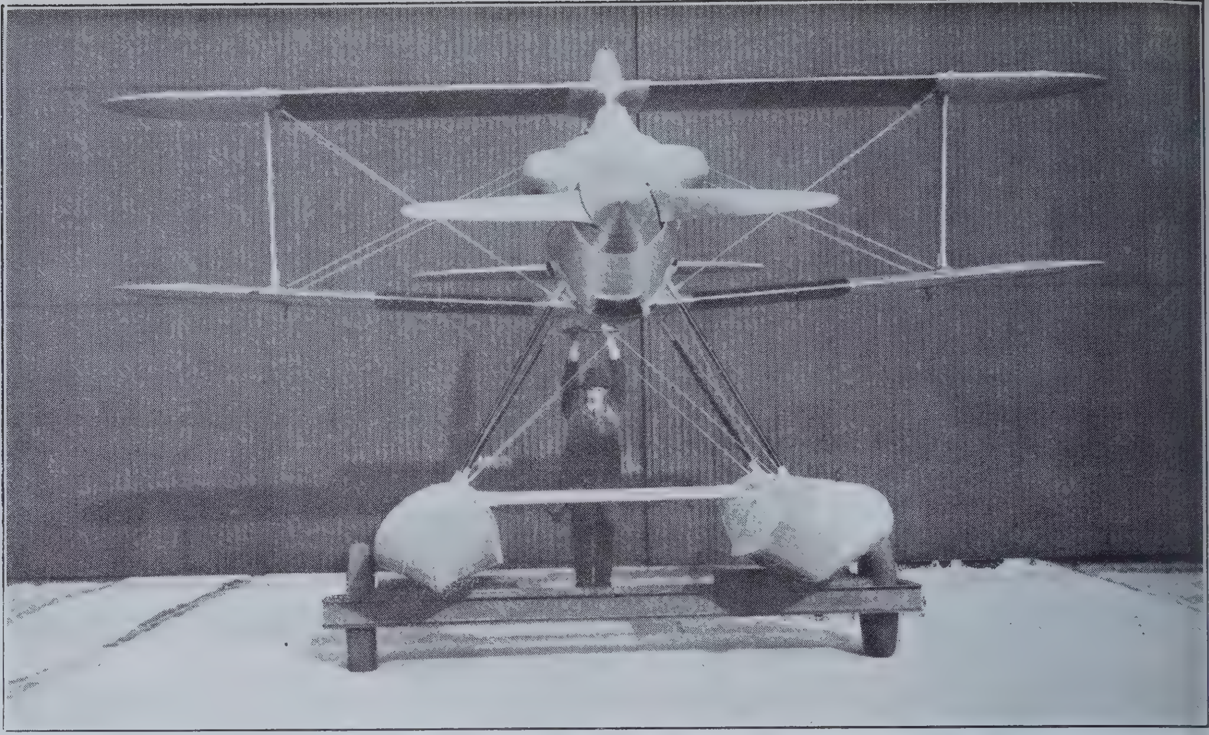
The final product of the Company to date is the Gloster IV, which is an unparalleled piece of engineering skill. This machine, piloted by the late Flight Lieut.

Estados Unidos, con una velocidad promedia de 321,869 kilómetros por hora. Esta velocidad no representaba las posibilidades máximas del avión, puesto que en pruebas subsiguientes se alcanzó una velocidad de 376,586 kilómetros por hora. En la actualidad el Gloster III presta servicio como máquina de enseñanza intermediaria para el *team* británico que ha de tomar parte en el Trofeo de Schneider.

La última producción de la Sociedad Gloster es el aparato Gloster IV que constituye una obra de ingeniería experta sin paralelo. Este avión, piloteado por el finado Teniente de Aviación Kinkead, D.S.O., D.S.C., D.F.C., del Real Servicio de Aviación Británica, entró en el concurso del Trofeo



The "Gloster IV" (Napier Lion Engine) which competed for the Schneider Trophy at Venice in 1927.
L'appareil "Gloster IV" (Moteur Napier Lion) ayant participé à la Coupe Schneider, à Venise en 1927.
El aparato "Gloster IV" (Motor Napier Lion) que participó en la carrera para el Trofeo Schneider en Venecia, en 1927.



The "Gloster III" (Napier Lion Engine).
L'appareil "Gloster III" (Moteur Napier Lion). El aparato "Gloster III" (Motor Napier Lion).

escomptée d'après les essais préliminaires au cours desquels l'appareil s'était montré pour le moins aussi rapide que le S.5, ayant atteint 473 km. 145 à l'heure. Malheureusement, sa vitesse màximum n'est pas connue, mais on peut—sans crainte de se tromper—l'estimer bien supérieure à 480 kms. à l'heure.

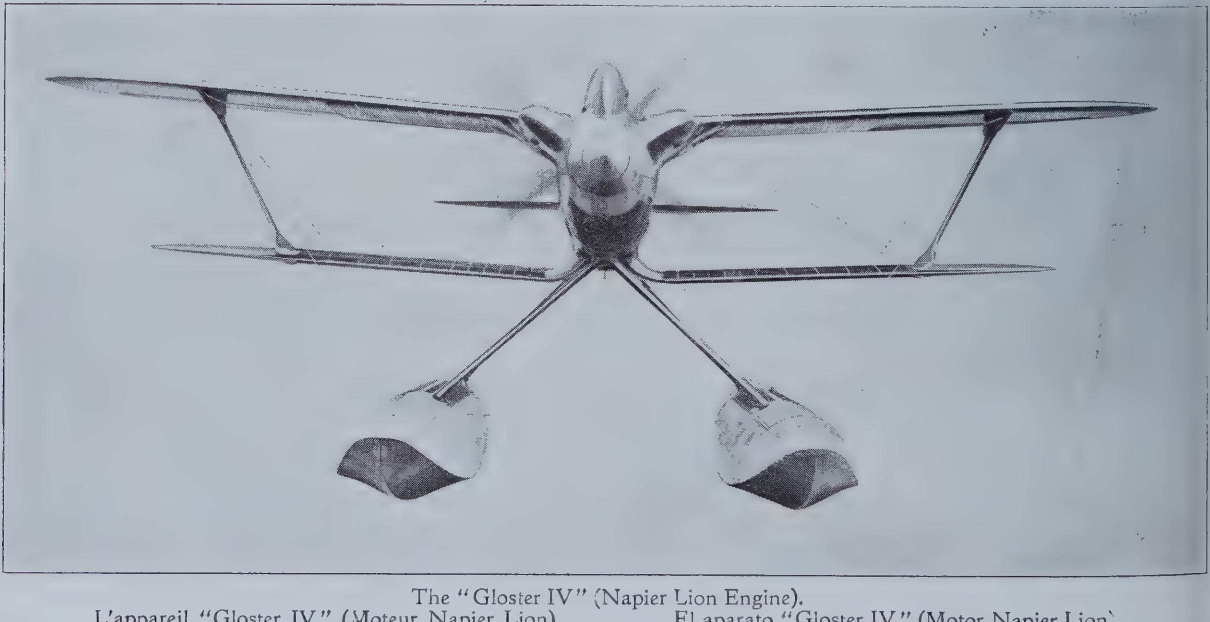
Les photographies accompagnant ce résumé servent à illustrer les progrès suivis marqués par chacun de ces appareils; l'élimination graduelle de toutes protubérances et l'épurement général des lignes; la réduction de la résistance à l'avancement jusqu'à son minimum et

Kinkead, D.S.O., D.S.C., D.F.C., R.A.F., competed for the Schneider Trophy at Venice in 1927, the average speed over the fastest lap being 277 m.p.h. Owing to engine trouble this speed was considerably lower than was expected from the preliminary trials, when the machine showed itself at least as fast as the S.5 and attained a speed of 294 m.p.h. Its maximum speed is unfortunately not known but it can be safely assumed to be well over 300 m.p.h.

The accompanying photographs illustrate the steady progress that each of these machines has registered; the gradual elimination of all protuberances and

Schneider en Venecia en 1927 alcanzando una velocidad promedi de 445,786 kilómetros por hora e la etapa más rápida. Debido cierta pana de motor, dicha velocidad fué considerablemente inferior la que se anticipaba con relación las pruebas preliminares, cuando l máquina se mostró por lo meno tan veloz como la S.5, registrand una velocidad de 473,145 kilómetros por hora. Desafortunadamente no se conoce su velocida máxima, pero puede presumirse co la mayor seguridad que sobrepasa d mucho los 480 kilómetros por hora

Las fotografías que se acompaña ilustran el progreso uniforme registrado por cada una de esta máquinas; la eliminación gradual d todas las protuberancias y el de



The "Gloster IV" (Napier Lion Engine).
L'appareil "Gloster IV" (Moteur Napier Lion). El aparato "Gloster IV" (Motor Napier Lion).

e lieutenant aviateur Kinkead
ur le "Gloster IV" en
ain de dépasser le lieutenant
viateur Worsley, sur l'appareil
.5, à Venise, en 1927.

El Teniente de Aviación Kinkead en el "Gloster IV" al momento de pasar el Teniente de Aviación Worsley en el aparato S.5, en Venecia en 1927.

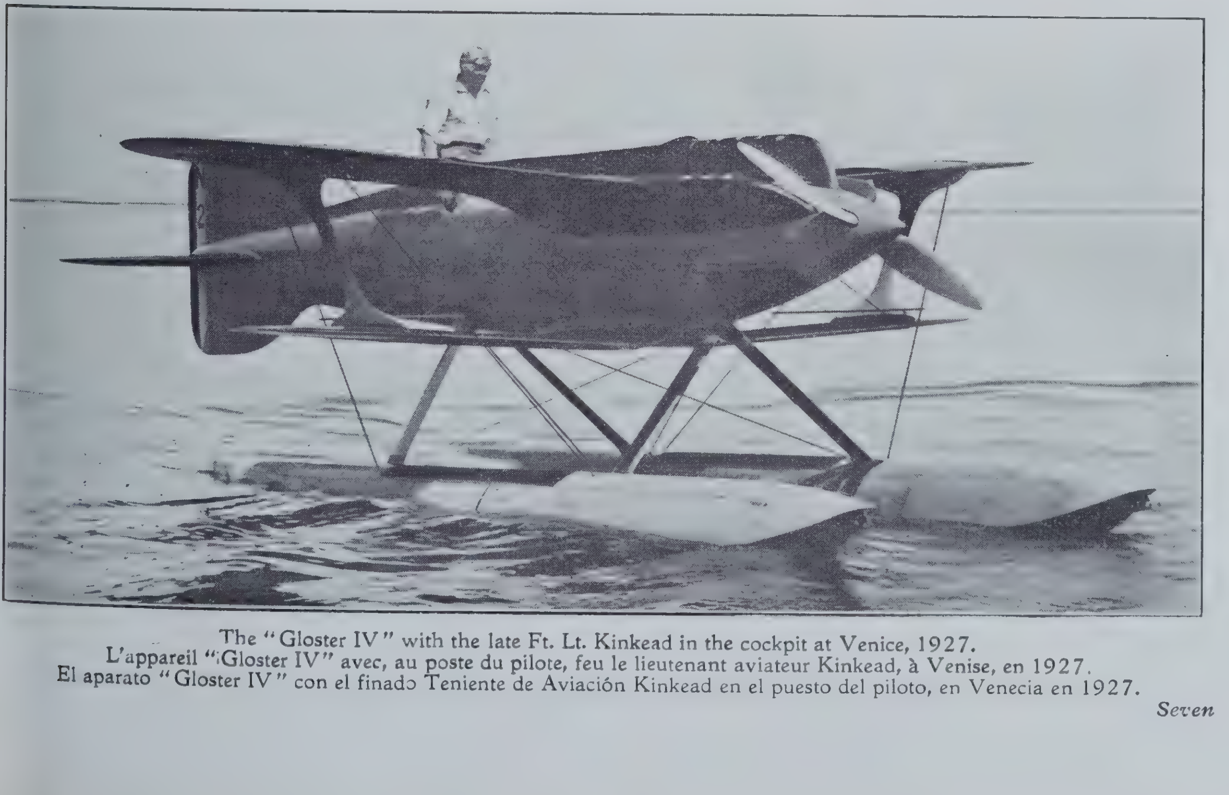
"Flight". Photo

Ft. Lt. Kinkead on the "Gloster IV" overtaking Ft. Lt. Worsley on the S.5 at Venice, 1927.

étonnant degré de perfection qu'ont
ni par atteindre les profils fuselés.
es méthodes présidant à l'établisse-
ent des structures et de la dis-
osition générale, ont également
eaucoup progressé, tandis que les
onnaissances et l'expérience acquises
la suite des gros efforts faits en
ue de ces grandes épreuves de
tesse, ont largement contribué à
réputation mondiale dont jouissent
ésormais les appareils Gloster.

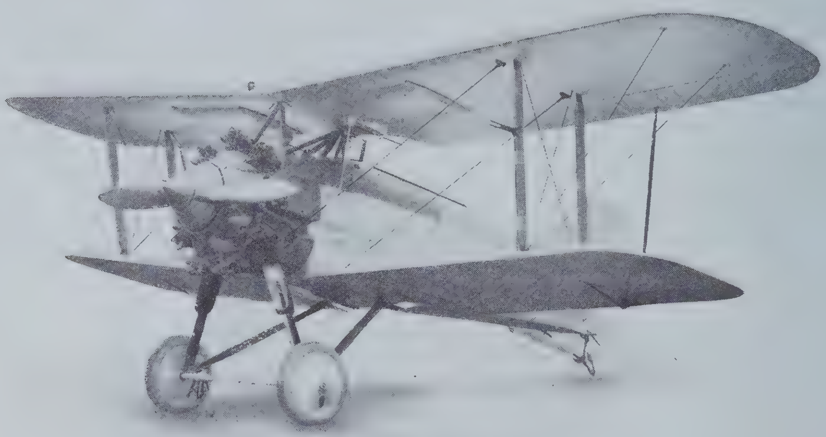
general cleaning up of the machine; the minimising of head resistance and the astonishing degree of streamline perfection which has been obtained. Great advances in structural methods and layout have also been made, and the knowledge and experience which these racing efforts have provided has contributed largely to the world wide reputation which Gloster machines have won for themselves.

lineado general más perfecto de la máquina; la reducción de la resistencia al avance y el grado sorprendente de perfección que se ha obtenido en la línea de corriente. También se han llevado a cabo grandes adelantos por lo que se refiere a los métodos de estructura y disposición, mientras que el conocimiento y la experiencia que se han derivado de estos esfuerzos de carrera han contribuido grandemente a la reputación mundial que se han captado los aviones Gloster.



The "Gloster IV" with the late Ft. Lt. Kinkead in the cockpit at Venice, 1927.
L'appareil "Gloster IV" avec, au poste du pilote, feu le lieutenant aviateur Kinkead, à Venise, en 1927.
El aparato "Gloster IV" con el finado Teniente de Aviación Kinkead en el puesto del piloto, en Venecia en 1927.

GLOSTER "GAMBET"



TYPE	Single Seater High-Speed Deck Landing Scout.		
ENGINE	420 h.p. Bristol Jupiter Aircooled Radial, Series VI.		
DIMENSIONS	Total Surface	284 sq. ft.	26·383m².
	Span	31' 10" Top, 26' 0" Bottom	9·702m.—7·925m.
	Chord	5' 6½" „ 5' 2½" „	1·688m.—1·587m.
	Gap	5' 0"	1·524m.
	Wing Section	Special High Lift Biplane Construction.	
TANKAGE	Petrol: Two 36-gallon tanks mounted in Top Planes. Gravity feed.		
	Total capacity	72 gallons	327 litres
	Oil	7 „	31 „
PERFORMANCE	Speed at 5,000 ft. (1,524m.)	152 m.p.h.	245 kms.
	„ 10,000 ft. (3,050m.)	145 m.p.h.	233 „
	„ 15,000 ft. (4,570m.)	138 m.p.h.	222 „
	Climb	3 mins. to 5,000 ft.	(1,524m.)
	„	7 „ to 10,000 ft.	(3,050m.)
	„	11 „ to 15,000 ft.	(4,570m.)
	Ceiling	23,000 ft.	7,000m.
	Landing Speed	49 m.p.h.	79 kms.
	Duration: 3¼ hours at 15,000 ft. (4,570m.) with full load.		
WEIGHTS	Total loaded weight of machine,	3,075 lbs.	1,397 kg.
	Load per sq. ft.	10·83 lbs./sq. ft.	52·954 kg./m².
	Load per H.P.	7·32 lbs./h.p.	3·28 kg./C.V.
ARMAMENT	Two Vickers Guns at sides of fuselage, firing through propeller. Provision for bomb racks to carry 4—20 lb. (9 kg.) bombs.		
SPECIAL FEATURE	Easy accessibility to Engine and all essential parts, Ideal Gun Position, Robust Construction, Special Gloster Biplane Combination, Tanks easily detachable and Gravity Feed, Excellent Manœuvrability.		

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No. 4.

THE AEROPLANE—AUG. 1, 1928.

KARACHI TO SINGAPORE.

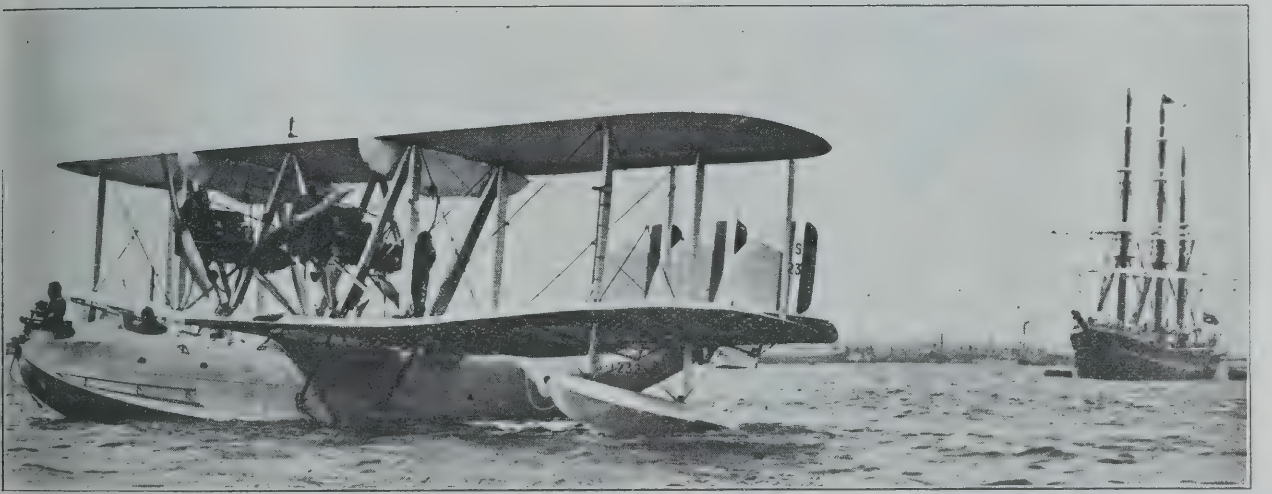
THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXXV. No. 5. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"THE OLD ORDER CHANGETH, YIELDING PLACE TO NEW."
(*Tennyson.*)



COASTAL RECONNAISSANCE:—The latest metal-constructed Supermarine Southampton Flying Boat (two Napier Lion engines) recently supplied to the R.A.F. This flying boat is a development of the type which has completed the Service Cruise to Australia under Group Capt. H. M. Cave-Browne-Cave, D.S.O., D.F.C. On the right is the barque-yacht "Fantôme II."

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ON USEFUL AND USELESS FLYING.

To hear some people talk you would think that any aero-
ane which gets into the air on any excuse whatever is
ing useful flying. We hear so much about making the
ation air-minded, and increasing Imperial interest in avia-
on, and abolishing the frontiers of the World by air com-
unications, and things of that sort, that some people do
tually think that flying of any sort must be useful but
at some is more useful than others,—much on the British
orking-man's principle that there is no bad beer, but that
me beer is better than others.

As a matter of fact quite a lot of flying is either useless, or
es very little to advance aviation in relation to the cost
d risk involved, or is definitely harmful. And all the
oney and energy that is spent in this flying which is use-
ss or worse might so easily be expended usefully.

If, for example, all the good money that has been spent
trying to fly the Atlantic on machines which show no
vance at all on types which have succeeded or failed before
d been spent on new experimental types, we might be
arer a regular trans-Atlantic air-line. Some day we shall
ve a regular air service across the Atlantic, and so attempts
cross the Atlantic in machines which are a step or two in
e direction of the sort of machine which will eventually be
ed for the job may be worth while. But there is certainly
sense in trying to do a trans-Atlantic flight on any kind
aeroplane or float seaplane or flying-boat which exists to-
y.

USELESS RISKS.

Or take Polar flying for example. Mr. George Wilkins,
w Sir Hubert, did manage to get across from Canada to
itzbergen and proved that there was no land on the course
tween the two, which was already pretty well known to
afaring people. Perhaps this knowledge was worth the
sk. A good deal depends on the value of the people who
ke the risk.

But was it worth while to risk so many lives and so many
achines in trying to rescue the crew of the *Italia*? Appar-
tly the Guilbaud-Amundsen outfit is lost. Lieut. Lundborg
as only rescued by sheer good luck and his rescuer very
arly lost himself on his next trip. And apparently the
umber of lives actually risked in trying to rescue the airship crew, taking each attempt as representing a separate life, just about equals the number of lives which they hoped to save.

A man who gives his life for a friend is certainly the noblest of humankind, provided that they both happen to be in the same hole at the same time. But it strikes one as being rather foolish for a man who is known to be useful, and has future possibilities of usefulness, to go deliberately and put himself into the same hole as another man at the imminent risk of losing both lives.

Statements have been made that Commander Byrd of the United States Navy, and Sir Hubert Wilkins, presumably with adequate crews, intend to take further risks and to go to further expense in exploring the Polar regions. Why?

As Major Moyes said when asked to join the first Polar expedition which was proposed, "Why *should* we go to the North Pole? It's *frightfully* cold, and we don't know a *soul* there!" That seems such an unanswerable argument. The boundless energy of Byrd and Wilkins and their companions might so easily be expended more usefully,

USEFUL ENDEAVOUR.

For the other side of the picture, look at the various flights made by Mr. Cobham before he became Sir Alan, to Burma and back, to South Africa and back and to Australia and back. Probably the risk involved at times in these flights was quite as great as that in flying over the Polar regions or across the Atlantic. But they were all over country which could eventually be opened up for air communication by using the right type of aircraft and with proper ground organisation.

Similarly, the recent great flight by Sir Alan and Lady Cobham and their crew through and round Africa involved risks over tropical forests and over shark-inhabited waters which were a good deal greater than ordinary travelling risks. There again the flying was useful because only proper ground organisation is necessary to make the whole of that course an ordinarily safe route for air transport.

USELESS AGITATION.

Then look at another aspect of the question altogether. The other day there was a hectic article in *The Daily Ex-*

FOR USEFUL FLYING.—The Vickers Vendace seaplane (330 h.p. A.D.C. Nimbus engine), which has been supplied to the Aircraft Operating Co. Ltd. for use on their air survey contracts in Brazil.

press by Brigadier-General P. R. C. Groves, C.B., C.M.G., D.S.O., Secretary-General of the Air League of the British Empire, raising the old old wail that in this country we have only twenty commercial aircraft whereas Germany and France have four hundred apiece. Probably General Groves never will realise that continually wailing about the impotence of British aviation, whether Service or Civil, is not the way to get the pence, let alone the pounds, of the British taxpayer.

John Citizen, or Strube's Little Man, or John Bull, or whatever character you like to take as emblematic of the Great English Public, or the fat-headed Englishman, is a sportsman who is always ready to take a gamble. But he is not the kind of fool who backs a loser with his eyes open. And the poor old Air League under General Groves' mis-guidance seems to spend the whole of its time in trying to induce us to back losers and to spend money on useless aviation.

Looking at the Air League's wail from a purely commonsense point of view, crying because we have less commercial aeroplanes than Germany and expecting the British Government to pay for making up the difference is exactly like somebody down in Cornwall crying because the number of goods-trucks passing through Penzance every day is less than the number passing through Manchester, and then expecting the County Council of Cornwall to build a railway and buy the rolling stock to make up the difference, without the slightest chance of raising enough traffic to fill the trucks.

Penzance happens to be a dead-end and the traffic simply is not there to carry. Similarly, Croydon is a dead-end. And if we bought 380 aeroplanes to make the fleet of Imperial Airways equal to that of the Lufthansa there simply would not be the passengers or the goods to put into them.

Possibly General Groves, as an Imperial flag-flapper, would suggest that the odd 380 might be put on the Imperial air ways to Australia and the Cape. But first of all, how does he propose to get across France and the Mediterranean to Egypt? And does he really think that so many of the people going to the Far East or to South Africa would want to travel by air as to keep his 380 aeroplanes busy?

Or supposing we sent them all out to Cairo and made Heliopolis our great air terminal,—why should the poor British Little Man pay for them? If air transport is wanted between Egypt, 'Iraq, India and Australia, and if there is not the ordinary plain paying commercial traffic to keep air-lines going, then Egypt, 'Iraq, India and Australia, ought to find the subsidy for them. The British Little Man, thanks to Mr. Churchill (ever one of the best friends of aviation, whatever he may be as a super-taxer), has quite enough burdens of his own without financing wealthy Dominions Overseas.

WHAT IS THE USE?

For the matter of that, the four hundred commercial aeroplanes which Germany is said to possess and the like number which France is said to possess (on the authority of General Groves) are not all the kind of luxurious air liners which abusers of our air-lines would like the British public to believe them to be. If one could get at the exact figures o would probably find that our despised twenty commerci aeroplanes probably carry on a given number of journe about as many paying passengers as either the German French lines carry in about a hundred aeroplanes.

The whole of Germany's air traffic is not run by the luxu ous three-engined Junkers machines which visit us at Cro don. And the whole of the French traffic is not run by t twin-engined LeO. dining-saloons which occasionally co from Paris. And the safety and regularity of the Germ and French lines simply cannot be compared with that Imperial Airways Ltd., or of the various taxi machines whi are run without subsidies by Air Taxis Ltd., the De Hav land people, A.D.C. Aircraft Ltd., the Surrey Flying Se vices and one or two more.

Touching wood as one writes, we have not killed a payi passenger in British Civil Aviation for something like thr years. And one has the authority of a fairly knowledgeab person in British Aviation insurance for saying that no sa insurance company would insure the passengers on some the ordinary internal air lines of Germany, and that so French routes are even worse.

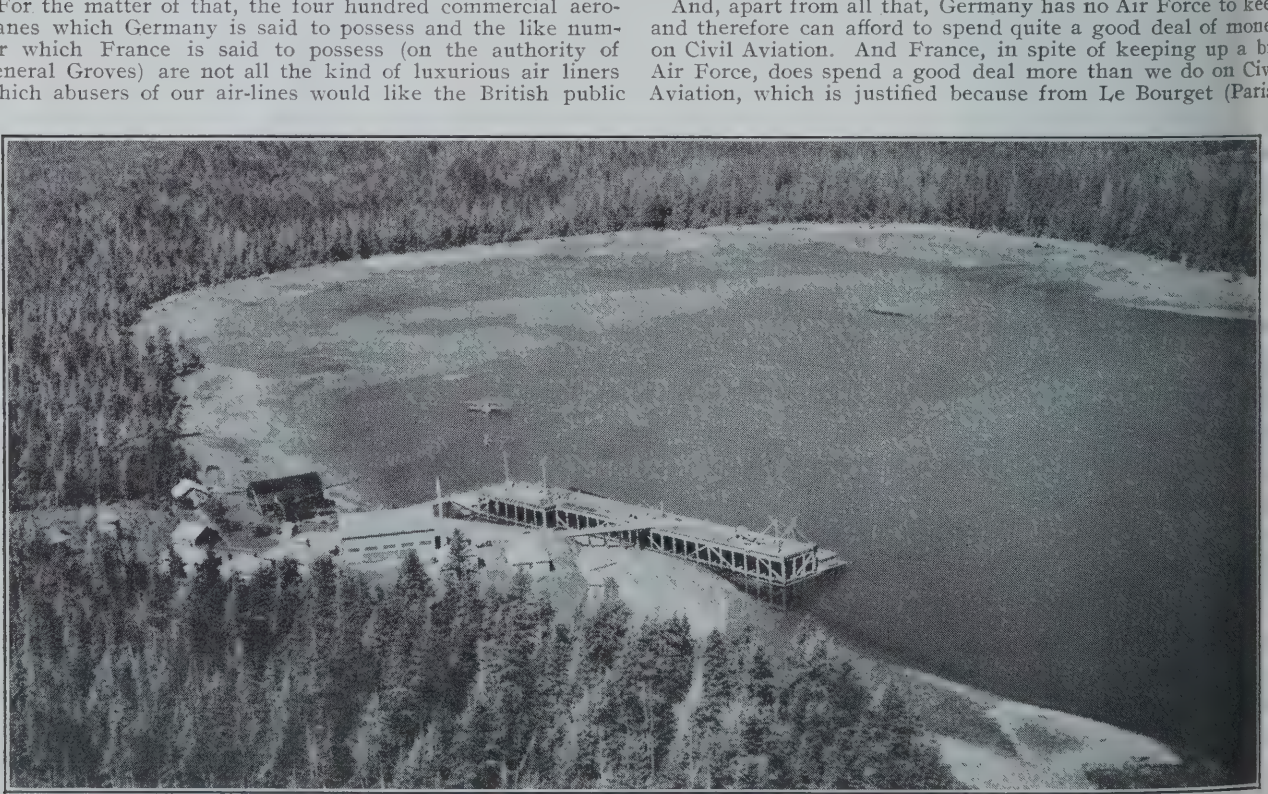
A GRIM STORY.

There is a grim story told by a British pilot who had do a fairly long trip round France and Spain some few mont ago. After leaving Paris he landed at one of the aerodrom in the direction of the South and after landing asked cheeri how things were going in commercial aviation. The offic of the aerodrome told him that things were very busy a added, "But, alas, we had an unfortunate accident last wee Pilot and four passengers *tous carbonisés.*"

Full of sympathy the pilot hopped on to the next aerodro and again tried to be cheery. Here again he was assur that business was brisk but that two weeks before, alas, the had been an unfortunate accident, a pilot and two passenge *tous carbonisés.* Again, having expressed due sympath he proceeded on his way, and at the next aerodrome he w again told that Commercial Aviation was flourishing but th the day before a pilot and three passengers had been *to carbonisés.*

When he had heard this about six times he began to g tired of carbonised passengers and thought it safer to neither inquiring nor sympathetic. But all the same, ev without asking, he came across several further accounts the carbonised, varied in Spain apparently by details machines which left their aerodromes and mere vanished,—apparently having fallen into the sea while eith flying along the coast or crossing to Africa. Either he mu have struck a particularly unlucky patch or else Commerci Aviation on the Continent is not all that General Grov has been led to believe.

And, apart from all that, Germany has no Air Force to ke and therefore can afford to spend quite a good deal of mon on Civil Aviation. And France, in spite of keeping up a b Air Force, does spend a good deal more than we do on Civ Aviation, which is justified because from Le Bourget (Pari



USEFUL FLYING.—A Fishery Protection Patrol operating base near Prince Rupert, British Columbia.

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The following extract from the "Daily News" of 30th June, 1928, refers to the flight from England to Australia of four Supermarine-Napier flying boats of the Royal Air Force:—

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air lines run to all points of the compass, whereas from Croydon they only run in one direction.

USELESS ENGLISH LINES.

Probably General Groves would like the Government to subsidise air lines all over England. They would merely be useless flying.

Truly if we could rely on stretches of weather such as we have had recently, air lines could be run from Glasgow and Edinburgh and perhaps Newcastle, Leeds and Manchester to London. But in average English weather, until we get vastly improved directional wireless and further developments which will tell a pilot of one aeroplane when he is near another in a cloud, quite a high percentage of the loads of passengers trying to get through to Glasgow would stand a very good chance of coming to the same end as did poor Mr. Warwick in the King's Cup Race.

Anywhere South of Manchester or anywhere down in the West country as far as Plymouth, the train service is so good that even the fastest aeroplanes could not compete with it. By the time one had got from Bristol to any possible aerodrome on the outskirts, and from Croydon or any possible London aerodrome into London, one could have done the whole journey by taxi and train in less time.

USEFUL AIR TRANSPORT.

Useful aviation within the British Isles will be made up
of air taxi work and private flying. The time will c
when every city of any size will have its municipal a
drome properly equipped and when every village will, at
rate, have a landing field. Then people will flop about
country and travel in their own machines or if a man w
to get from London to some inaccessible place in a h
he will hire an air taxi to do it.

Hundreds of people do so now and we never hear a v
about it from General Groves and the Air League
if they had the gumption, could compile statistics of pri
flying and taxi flying in this country which would sh
the World to the core by way of the daily papers.
that, of course would not suit the book of the kind of pe
who has a chronic grievance against those in authority
who is foolishly convinced that the way to get the Br
public to support aviation is to say that there is none.

If the Air League would discover for itself how much
ful aviation is being done in this country, and how
ahead we are of all other countries in real useful aviat
and how extraordinarily economically our flying is done
pared with the flying of all other countries, and how fri
fully efficient and well-equipped our Air Force is
pared with that of all other countries, something m
be done to convince people that the Air League itself
something to do with useful flying instead of being, a
is, completely useless,—or worse.—C. G. G.

AN ULSTER REVIVAL.

A proposal has been made to start yet another experimental air service for mails and passengers between Belfast and Liverpool. According to *The Belfast News Letter*, which may fairly be said to lead public opinion in Ulster, the project has been received with keen interest in Northern Ireland and has at any rate the moral support of the North of Ireland Government and the Belfast Harbour Board.

According to *The News Letter* Sir Alan Cobham is investigating the proposition with the idea of using Short Calcuttas for the experiment. If a regular service can be run between the North of Ireland and Liverpool, and if there is any real need for such a service, certainly no better machine could be used for the purpose. But one has grave doubts whether the weather which pervades the North of the Irish Sea at certain seasons would permit the running of such a service.

The London correspondent of *The Belfast News Letter* announces that he has been fortunate in securing the co-operation and support of Brig-Gen. P. R. C. Groves, C.B., C.M.G., D.S.O., Secretary-General of the Air League of the British Empire, and quotes General Groves as saying "Little has been done to promote airmindedness in Ulster and the North of England." Evidently General Groves has forgotten, if he ever knew of, the strenuous efforts which were made by Mr. Donald Greig and others to run a regular mail and passenger service between Liverpool and Belfast and later between Stranraer and Belfast. Land-going machines were used.

When once they are in the air, land machines are just as capable of fighting their way through bad weather as are flying-boats. So the experience gained by the experiments of a few years ago are just as valuable as if they had been made in flying-boats. Everything possible was done to make those experiments a success. But they were simply beaten by the weather.

The people and the authorities of the North of Ireland gave every possible support to the experiments. A very decent aerodrome was made alongside the Lisburn Road, a few minutes from the centre of the City. The best of pilots were engaged. And the Belfast area was as airminded as could be about the whole thing. But the project failed, and one can see no particularly good reason why a renewal of the experiments should succeed.

There is an extremely good steam-boat service between Heysham and Belfast which gets through with unfailing regularity in all weathers. And the distance is so short that air transport can really offer very little advantage over land and water transport.

At certain seasons of the year there might be quite a good deal of taxi-work to be done between the North of England and Ulster,—especially when people become more accustomed to, or more enthusiastic about, travelling by air than they are at present. But one is certainly not optimistic about a regular air service on this route. If the experiments do not come under the head of useless flying, they do represent effort, energy, and money which might be better expended.

Incidentally, General Groves also seems to have forgotten that there has been a very useful and hard-working Special Reserve Squadron of the R.A.F. (No. 502 Ulster (Bombing) Squadron) at Aldergrove near Belfast since about May, 1926. It has done quite a good deal to promote airmindedness in Ulster. But then, of course, General Groves cannot be expected to remember anything good of the Royal Air Force.

SIR ALAN COBHAM'S PLANS.

On July 26 the British Empire League entertained
Alan Cobham to Lunch, the Viscount Elibank being in
Chair and the guests being chiefly high officials in Afr
Dominions and Colonies and representatives of papers of
Dominions and Colonies, chiefly African. The occasion
to give Sir Alan an opportunity of describing in detail
route of the proposed air service from Alexandria to Kisu
Kenya Colony. This is emphatically a service which
produce useful flying.

Before proposing the health of Sir Alan, Lord Elibank as
the company to authorise him to send a message of symp
to the family of the late Mr. G. N. Warwick who was k
in the King's Cup Race within a few miles of Lord Eliba
home.

Referring to Sir Alan's great flights and what they
tended, Lord Elibank said how glad he would have been
year of a conveyance which would have taken him to Ma
and back in a fortnight or three weeks instead of the
months which his journey took. He was much struck
statement in *The Times* that the Belgians and the Fr
were more active than ourselves in establishing air line
South Africa. He said that our present position was
the fault of the Air Ministry but of the Government
which would not give the Ministry funds.

MAJOR-GENERAL THE RIGHT HON. J. E. B. SEELY,
C.M.G., D.S.O., congratulated the gathering on Lord
bank and Lord Elibank on the gathering.

SIR ALAN COBHAM, describing flying in general, said
it was really like riding a car in the air with the w
horizon in which to fool about. (A very apt phrase.)
described how he had collaborated with Captain Glads
and Mr. Robert Blackburn and had amalgamated their ef
in this African work with Mr. Short's.

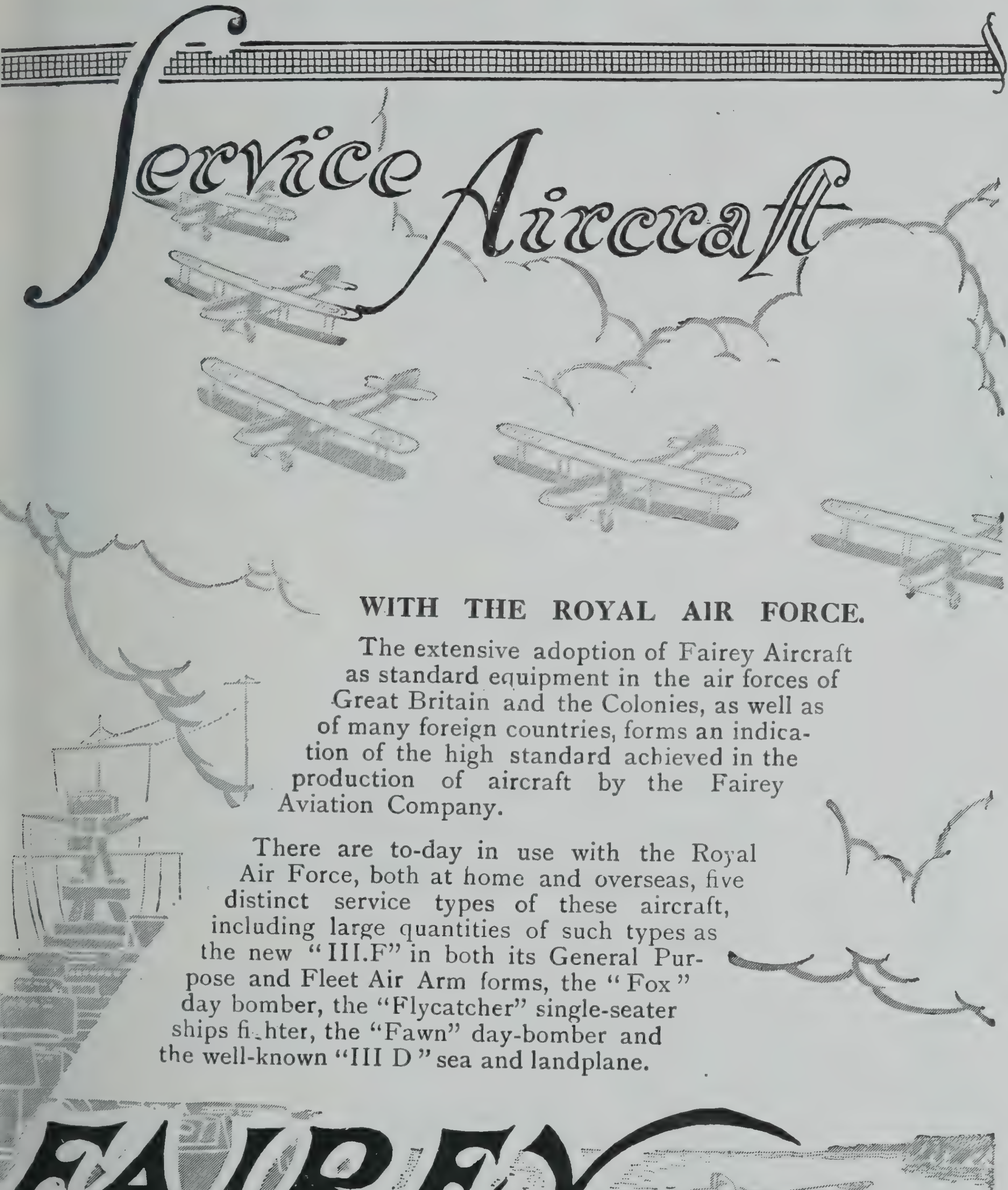
Sir Alan's experiences in his African trip have already
fully described in THE AEROPLANE. What is mainly of int
is his schemes for the development of the air lines.

He pleaded that the organisation should be on a sca
take care of future developments and not merely for imr
ate needs. He said that in erecting a bridge you do
simply ask what is to be the amount of tolls obtain
or if making a road you do not do it to carry the traffic
mediately available. He described the attractions of Ug
and Kenya and the wonderful possibilities in securing
tourist traffic now that tourists were getting fed up
Egypt. He also suggested that with properly develope
routes any kind of a business proposition could be pron
and easily investigated by the principals concerned in pe

So far from the development of flying interfering with
ping he pointed out that it would do much to foster
ping and that the two interests could serve one ano

The projected line would go from Alexandria up the
to the Lakes, bringing Kenya, Uganda, the Tanganyika
ritory and the whole of the British East African Col
within four days' journey of Cairo. That would bring e
thing within seven days' mail of London.

If they got their service to Kenya working they w
then tackle the next section of the route from Ki
through Nairobi, Dodoma, Lake Nyasa, N'dola, Broken
Livingstone and Johannesburg to Cape Town. He a
that if he had not been convinced of the possibility of f
night and day over the Sudan with 100 per cent. effic
he would not have contemplated the proposed service.



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THE OXFORD UNIVERSITY AIR SQUADRON.

Without going into such a debatable subject as which is the senior University, there is no disputing the historical fact that the Oxford University Air Squadron is the junior air unit of the two Universities. But the evident enthusiasm which pervades the members of the Squadron and the way in which they set about their work shows quite clearly that it is second to none in effectiveness and efficiency. And the keen rivalry which exists between the Squadrons of the two Universities is one of the healthiest signs one has seen for the future of British Aviation.

In both one finds the same keenness for all branches of Aviation. Some members of each devote themselves primarily to the science side of aeronautics, regarding the practical flying rather as a means to their end. Others, with an eye to commissions in the Royal Air Force, concentrate on the Service side of the work. Others again, while interested in the technical and militant aspect of flying, get their chief joy out of the mere act of flying itself, and so may be put down as being chiefly concerned with the sport of flying.

Thus we have the scientific, the Service and the sporting sides of flying all represented in each University. And the three together mean quite a lot to the progress of aviation in the British Empire, for, at the finish, whatever views people hold about public school and university educations, there is no getting away from the fact that Oxford and Cambridge do indicate the outlook and lead the movement of successive generations of Englishmen in everything,—from legislation to leg-wear.

A visit a few weeks ago to the Oxford University Air Squadron in training at Manston convinced one that the budding Baldwins and Asquiths and Curzons of to-day take to the air as naturally as their predecessors took to the river or any other form of sport. And one has distinct hopes that some day we may have a genuine University Air Race in which the people who matter will be quite seriously interested, even if we cannot hope to infect the whole population of the British Empire with the same partisanship which is produced by the Boat Race.

In the meantime the Oxford Squadron is doing remarkably good work, and hitherto it has been doing it under considerable difficulties. To begin with the Squadron was only formed at the beginning of the Michaelmas Term, 1925. The instruction was then designed to benefit those who wished to take up aviation privately or as a profession in a civilian capacity, or who intended to apply for a commission in a capacity, or who intended to apply for a commission in the Royal Air Force or in the Reserve of Air Force Officers or in the Auxiliary Air Force. But there was no flying.

Originally the Squadron had 25 members. This was increased in 1926 to 50 members, and the establishment has now been raised to 75. In 1927 the Authorities of the University decided, after considerable persuasion, to sanction flying in term-time by members of the Squadron, provided that they flew at an R.A.F. station under the direct personal supervision of the Instructional Staff of the Squadron. The first flying under these conditions was done in October, 1927, at the new R.A.F. Station at Upper Heyford, and so flying has only been permitted on dual-control machines instructors.

Though this system is excellent as a means of teac members of the Squadron all about the theory of flying so forth, one rather gathers that so much instructional fl at the rate of perhaps an hour or so a week during ter actually inclined to hamper the instructors when mem of the Squadron want to start solo flying "in camp," the annual period of training is generally called. Instruc would very much prefer to give a man a few hours of fa intensive dual instruction and then send him off solo t to keep him doing dual training at long intervals for mo on end and then expect him to fly alone.

When solo flying is allowed during term time, as gathers it is to be in future, people will be able to go after considerably fewer hours of dual instruction. result will be a saving in the time of instructors, in w and tear of machines, in petrol, and in risk to member the Squadron.

Apart from flying, the Oxford Squadron has also hith been at a disadvantage in comparison with the Cambri Squadron in not having the same adequate accommoda and equipment. An aeroplane shed for ground instruct together with a workshop which has five aero-engines in exists at the headquarters in Manor Road, Oxford. A p of this shed is partitioned off as a library and reading r and has a fair number of technical books. But the accom dation does not include a comfortable lecture room w arrangements for afternoon tea such as that in which Cambridge Squadron rejoices.

Consequently there is not the same inducement for peo to drop in during the afternoon and use the place as a C And so the members of the Squadron at Oxford do not kn one another quite so well as do the Cambridge people. fact some of the members said that they had never met the other members of the Squadron till they came to ca One gathers that this little social matter is also soon to h attention.

During term classes of instruction are held in such s jects as flying training, engines, rigging, pilotage, wire telegraphy, radio telephony, armament, and gunnery, photography, meteorology and so forth. Consequent this instruction, and on the annual camps, certificates issued to those who are proficient and have (1) Done years in the University Air Squadron including two cam (2) Have done 15 hours' flying of which three have been so and (3) Have passed an examination on the subjects l down for the Reserve of Air Force Officers.

Members who have qualified for these certificates and w to apply for commissions in the R.A.F. derive correspond benefits. A certain stated amount of flying plus a cert standard of efficiency gives a man specified seniority if gets a Permanent Commission. And so it is possible fo University candidate to be promoted from Pilot Officer Flying Officer after a few months with an R.A.F. Squadr

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Before a member of the University can become a member of the University Squadron he has to pay an entrance fee of £1, which is his last and total payment to the Squadron, and he has to sign the usual forms of agreement and to get the consent of his parents and of his college authorities. After that, although he may spend quite a good deal of money in connection with the Squadron, he is free from all official expenditure in that all the requisite kit, parachutes, overalls and so forth are issued on loan by the Air Force.

The officers of the Oxford University Air Squadron at present are: Chief Instructor,—Wing Cdr. A. G. R. Garrod, M.A., M.C., D.F.C.; Instructor,—Flt. Lt. J. J. Williamson, A.F.C.; Flying Instructors,—Flt. Lt. T. B. Bruce, M.C., and Flg. Off. H. M. Schofield. The additional Flying Instructors attached during this year's camp have been:—Flg. Off. B. C. Mason, from No. 3 F.T.S., Flg. Off. R. P. P. Pope, D.F.C., from No. 5 F.T.S., and Flg. Off. J. G. D. Armour and Flg. Off. C. C. Clarkson, from the C.F.S. And though perhaps it is not seemly to make remarks about one's hosts, they are just about as efficient and as cheery a crowd as anybody could hope to meet.

Incidentally the O.U.A.S. is the more lucky in being sent to Manston. Old Sarum is a delightfully salubrious spot and nobody could be more charming to University people than the Headquarters Staff of the School of Army Co-operation and the officers of No. 16 Squadron. But Manston offers greater opportunities for enlightenment and amusement.

To begin with it embraces (that is the word) a squadron of night-bombers. And it is quite close to Margate. Members of the Squadron seem slightly in doubt as to whether the night-bombing machines or the attractions of Margate are the more amusing. Anyhow, the night-bombing people are extraordinarily good to the people in the Squadron. They take them up night-bombing all over their machines so that the would-be R.A.F. officer can decide quite early in his career whether it is more pleasant to be air-sick out of the tail gun-pit of a night-bomber or over the nose in the new bombing position. And they can form seriously considered opinions, in the course of attack exercises, as to whether Clacton-on-Sea or the bathing pool at Margate is the more attractive.

There is also No. 2 Army Co-operation Squadron, from whom the O.U.A.S. may learn much of value about the lighter side of Service flying.

The ground instruction given to members of the Squadron during term time at Upper Heyford includes (1) Work in t repair shops; (2) Parachute folding; (3) Swinging aircra compasses; (4) Machine-gun firing; (5) Photographic wor (6) Wireless telegraphy, and (7) Airscrew drill,—partciular designed to prevent the would-be Trenchards of Oxford fro ending their careers prematurely and stickily on the tip an airscrew.

In addition to all this practical work members are su posed to acquire a knowledge of and to pass an examinati in Airmanship and Theory of Flight, Air Pilotage, Engin and Rigging. Consequently as may be seen, people have acquire a fairly useful knowledge of what they are doi before they go to camp.

When in camp they do have to work uncommonly har Unlike the Cambridge Squadron the members in camp a not divided distinctly into two flights, but the work th do amounts to much the same thing. For example, here a fair sample of their time-table for the day.

06.15 hours to 07.20 hours, Flying Instruction—14 pupi with 7 instructors. 07.30 to 08.30, Breakfast. 08.30 to 09.3 all members to attend lecture on "Seaplane Operations North Russia, 1919," by Flt. Lt. H. A. Haines, D.F.C. (good idea to give the younger generation an idea of wh the R.A.F. really did in some of our out-of-the-way war One hopes that Flt. Lt. Haines told the elevating story how the R.A.F. seaplanes captured Archangel while t Admiral Commanding the Fleet and the G.O.C. Troops sto on the bridge of the flag-ship and argued whether the attac on the town was a naval or a military operation.)

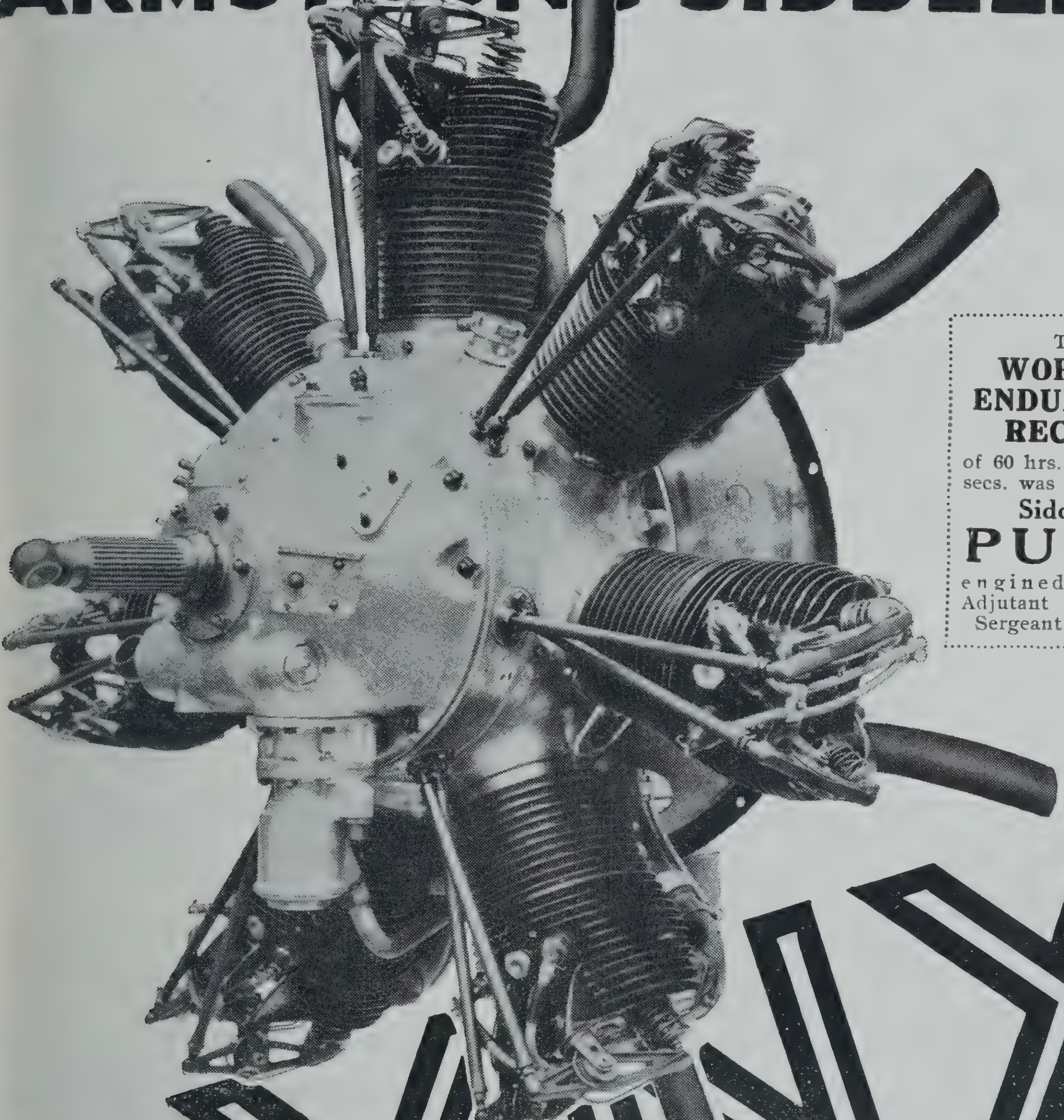
09.30 to 10.35, Flying instruction to 12 members, instru tion in parachute folding to 8 members. Meantime those co petent to fly alone were off across country on solo flight 10.35 to 11.15, Morning break,—interval for light refres ment.

11.15 to 12.20, Flying Instruction to 13 members, parachut folding for 9 members. 12.30, Lunch,—and very welcome to after all that hard work in the open and in the lecture roo 14.00 to 15.05, Flying instruction to 14 members.—After th sports, recreation or what-not.

By skilful arrangement of names and times every mer ber of the Squadron gets a fair share of flying. And thos who make the best showing as pilots after their first sol flights are, so far as possible, given every possible oppo tunity for extra practice.

The practical instruction which is given, apart from flying is quite varied. In the sample day quoted hereinbefore para chute-folding was the job of the day. On another day i

WITH THE O.U.A.S.—An Instructor giving an "observer" a little diving experience on an Avro (Lynx).



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would be machine-gun firing at the ranges. On another it would be a visit to the aeroplane repair shops of the School of Technical Training (Men), which is another branch of the Manston establishment. On another day it would be swinging aircraft for compass adjustment.

The lecture subjects are equally varied. Here are a few examples : " The Fighting Races of India " ; " Bombing " ; " Flying in the Near East " ; " Naval Co-operation " ; " Frontier Warfare " ; " British Empire Communications " ; " Civil Aviation " ; " Night Flying " ; " Sea-going Aircraft " ; " Armament " ; " Experiences in Palestine, India and 'Iraq " ; " Army Co-operation."

Taking it all round, when a member of the Squadron leaves camp, he must be fairly well saturated with air-mindedness, what with lectures, practical flying and the air of the Isle of Thanet, which, according to *The Daily Mail*, is the finest in the World.

And by the time a man has done his full three years in the Squadron and has taken his Oxford degree, whatever may be his pet subject, he ought to be just about as useful a member of Society as he is likely to be. If the Royal Air Force has the good fortune to acquire him as a Permanent Commission officer it is a very good thing for the Air Force, for the R.A.F. thus gets a man who is obviously keen, in that he has given up his own time to the work of the Squadron, and it also gets a man who has had a decent education and is otherwise " in the movement " socially. If, on the other hand, a member of the Squadron does not join the R.A.F. in any of its assorted manifestations, Reserve, Auxiliary or otherwise, whatever walk of life he chooses to follow is all the better for having in it one who has made a study of the various problems of aviation and is therefore bound to have considerable influence in making his fellow-men and women airminded.

There are in the Oxford Squadron several members who will no doubt contribute materially to the advancement of aviation without actually joining the R.A.F. There is at least one scientist of high distinction who is getting a very useful practical knowledge of flying to use as a basis for scientific theory. And there are undergraduates who are studying for Medicine, the Law and so forth whose intense interest in aviation will probably lead them to specialise o the aeronautical side of their own professions.

There are also in the Squadron certain members who whe they join the R.A.F. will certainly become star turn pilot if only they will curb their inclination to take unwarran able risks in the first fine flush of enthusiasm. When pilot specialises in spinning while still an undergraduat there is every prospect of his doing good work in the R.A.F provided that he does not prolong his spins too far.

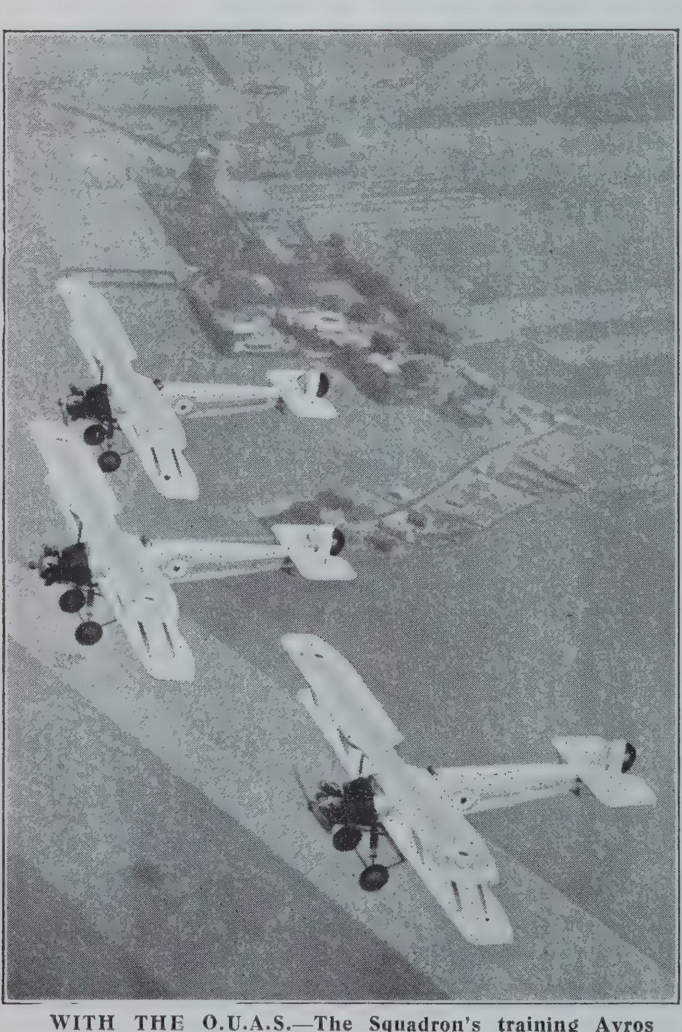
Also it is good that people joining the R.A.F. should hav a useful knowledge of the history of aviation before doin so. One met among the Squadron a member who convince one, without deliberately intending to do so, that he has a accumulated knowledge of both the Technical and Servic side of aviation which would make a very good mental outfit for a complete Historical Branch of the Air Ministry.

In a way the jobs of the officers of the University Squadro are comparatively easy in that, as they are dealing wit educated men and presumably gentlemen, their subordinate already have the general idea of discipline. But on th other hand the officers have no definite disciplinary power and occasionally educated men are inclined to be argumentative under circumstances in which a word of command woul save quite a good deal of time and trouble for the officer Consequently a certain amount of tact is necessary in dealing with a University Squadron which is not quite so necessary in a squadron in uniform. Therefore it is all the mor to the credit of both the University Squadrons that they ar so obviously happy families.

By a curious coincidence one happened to go down t Manston without premeditation on the same day that Si Philip Sassoon came down to inspect the Squadron. Ai Vice-Marshal Sir Ivo Vesey, K.B.E., C.B., C.M.G., D.S.O. Director of Organisation and Staff Duties, also arrived to d an inspection of the Squadron accompanied by two or thre Group Captains, as the curious constitution of Manston put it into several Air Force groups at once. Sir Philip as usua arrived in his pet Fairey III.F and Sir Ivo Vesey arrived i an Armstrong Atlas. One Group Captain came in a Moth an the other in a Bristol or something of that sort. (Senio officers pilot themselves in the R.A.F. in these days.) Consequently there was a whole review of assorted aircraft.

There would be difficulty in saying which was the mor interested, the celebrities in young Oxford or young Oxfor in the celebrities. But either way each seemed pretty wel pleased with the other, so there cannot be much the matter

C. G. G



WITH THE O.U.A.S.—The Squadron's training Avros (Lynx engines) in formation.

A RESEARCH REPORT.

Aeronautical Research Committee, Report for the Yea 1927-28. Published by H.M. Stationery Office (23-9000-0 28). *Price 2s. net.*

The annual report of the Aeronautical Research Committee becomes more like itself with each successive issue. This is inevitable in all the circumstances, for the Committee's work, though in detail it contains an immense number o new problems is essentially a steady grinding away on established lines.

Of the items of information which can be gathered one o the most noteworthy relates to the fact that the new high pressure wind tunnel which is to be installed at the N.P.L will have a working diameter of five feet and will work up t a maximum pressure of 22 atmospheres. That is the tunne will be of practically the same capacity as the American tunne which has now been in use for some years.

Another interesting piece of news is that following on a recent report on the importance of streamlining, by Prof B. M. Jones, the problems of securing reduced resistance in practical aircraft has been referred to a special sub-committee. Problems bearing on performance have been somewha neglected during the past two years in favour of researches bearing on safety and stability, and it is a hopeful sign tha they are once more to receive attention.

The Committee report that they have consulted the Director of Civil Aviation as to the probable requirements in the way of research for the needs of Civil Aviation in the immediate future. Among his requirements are :—

(i) A high-power heavy-oil engine to secure low fuel bills

(ii) Thick-wing monoplanes which are believed to have low maintenance charges.

(iii) The use of geared engines and of pusher airscrews to reduce noise.

(iv) The development of all-metal structures.

The Committee appear to be reasonably hopeful in regard to all these points.

Taken as a whole the report shows that a large amount of work has been done in the past year, and that on the whole satisfactory progress is being made with the many problems within the Committee's sphere of interest.

W.J. MILES. 1927.

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THE ROYAL AIR FORCE.

The London Gazette.

July 24.

General Duties Branch.—The S.S. comn. of Plt. Off. on probation H. M. S. Barnard is terminated on cessation of duty (July 25).

The following Plt. Offs. on probation are confirmed in rank (July 1) :—B. D. Nicholas, L. W. W. Modley, N. H. Fresson, F. G. Ferrier, A. M. Stevens, D. I. Stewart, W. R. M. Higgs, D. Dickson, A. T. C. Hazledine, M. G. Bircham, T. L. Harrison, R. W. A. Stroud, A. L. T. Naish, M. G. R. Harris, R. W. P. Collings, D. G. P. Fitzpatrick.

Medical Branch.—The temp. comn. of Flg. Off. S. McC. Craig (Temp. Lt., Gen. List Army, Dental Surgeon), is terminated on relinquishment of his Army commission (May 2).

Reserve of Air Force Officers.—General Duties Branch.—The following are granted comns in Class AA. (ii.) as Plt. Offs. on probation :— W. Carmichael, J. O. Mortlock (July 9); M. J. R. Alderson, H. T. Edgecombe, D. R. Gray, G. J. E. Howard, A. D. Moore (July 10); S. R. Herringshaw, G. Leggatt (July 11); T. H. W. Beadle, F. C. Fisher, F. G. Hill, N. F. Marsh (July 16).

The following Flg. Offs. on probation are confirmed in rank :—Class AA. (ii).—B. F. Fox (July 18). Special Reserve.—D. G. Allison, R. H. Maw, T. H. Worth, M. E. Morris (May 30).

Flg. Off. P. Wilson is transferred from Class A. to Class C. (May 1).

The following Flg. Offs. are transferred from Class B. to Class C. :—S. P. Scott (Feb. 26), E. McL. Cleland (Mar. 11), G. W. Mahony-Whitton (July 25).

Flg. Off. J. C. Dunbar relinquishes his comn. on completion of service (July 22); Flg. Oft. P. L. Sant relinquishes his comn. on account of ill-health, and is permitted to retain his rank (July 25).

Stores Branch.—Sq. Ldr. J. C. E. Gillham relinquishes his comn. on completion of service (July 24).

Medical Branch.—Flt. Lt. W. D. Miller, M.B., is transferred from Class D2 to Class D1 (May 15).

Auxiliary Air Force.—General Duties Branch.—No. 601 (County of London (Bombing) Squadron.—Flt. Lt. R. A. Grosvenor, M.C., reverts to the rank of Flg. Off. at his own request, and is granted the honorary rank of Flt. Lt. (July 24). No. 603 (City of Edinburgh) (Bombing) Squadron.—The following to be Plt. Offs. :—A. H. Bruce (June 9), M. H. G. White (June 25). No. 605 (County of Warwick) (Bombing) Squadron.—The following Plt. Off. to be Flg. Off. :—C. L. Knox, V.C. (May 23).

Appointments.

Week ending July 30.

General Duties Branch.—Flight Lieutenants W. M. M. Hurley, to No. 14 Sqdn., Middle East, 10/7. H. R. B. Howell, to No. 1 School of T.T. (Apprentices), Halton, 3/8. W. Wynter-Morgan, M.C., to R.A.F. Depot, Uxbridge, 30/6.

Flying Officers M. F. Morris, to R.A.F. Depot, Uxbridge, 1/8. J S. Blomfield, to No. 1 School of T.T. (Apprentices), Halton, 1/8. K. C. Garvie, to No. 55 Sqdn., 'Iraq, 30/6. C. E. Eckersley-Maslin, to Aircraft Depot, India, 2/7. F. H. Bailey, to R.A.F. Depot, Middle East, 5/7. W. T. Holmes, to E. and W. School, Flowerdown, 23/6. J. E. McC. Henderson, to R.A.F. Depot, Uxbridge, 23/6. H. R. Bardon and J. A. Hawkings, to Home Aircraft Depot, Henlow, 23/6. E. B. Steedman, to School of Army Co-operation, Old Sarum, 26/7.

Pilot Officers G. H. G. S. Jenkins, to No. 60 Sqdn., India, 28/6. D. B. McGill, to No. 1 F.T.S., Netheravon, 30/8.

Medical Branch.—Squadron Leaders J. Rothwell, M.B., to H.Q., 'Iraq, 13/7. D. G. Boddie, M.B., to C. and M. Party, Basrah, 1/7.

Flight Lieutenants L. I. Hyder, to No. 84 Sqdn., 'Iraq, 1/7. J. Hill, M.B., to C. and M. Party, Basrah, 1/7. E. P. Carroll, to R.A.F. General Hospital, 'Iraq, 29/6.

Stores Branch.—Flying Officers J. McCarthy, to H.Q., Inland Area, 18/7. E. A. Burridge, to No. 14 Sqdn., Middle East, 13/7. H. E. Young, to No. 19 Sqdn., Duxford, 23/7.

Accountant Branch.—Flying Officer J. L. Armstrong, to R.A.F. Station, Kenley, 25/7.

Fleet Air Arm Appointments.

The following appointments have been made by the Admiralty :—*Lts. (Flg. Offs., R.A.F.)*.—J. H. I. Wood, to *Victory*, lent to R.A.F. Base, Gosport, for full flying duties with base miscellaneous flights (June 16), amended appts. H. D. Barlow to *Courageous*, and for D.L. training in 407 Flight (June 25), and to *Eagle* and for F.F.D. in 402 Flight (on completion of D.L. training); G. L. Brinton, to *Courageous* and for D.L. training in 407 Flight (June 25), and for F.F.D. (on completion of D.L. training); C. A. Kingsley-Rowe, to *Furious* and for D.L. training in 405 Flight (undated) and for F.F.D. (on completion of D.L. training); H. W. Metcalfe, to *Argus* and for D.L. training in 401 Flight, and for F.F.D. (on completion of D.L. training); F. W. Bourne, to *Furious* and for D.L. training in 405 Flight (undated); and C. W. Byas, to *Ross* for Submarine M.2 and for full flying duties at School of Naval Co-operation, Lee-on-Solent, supy. (June 15). J. I. Robertson and E. J. E. Burt, to *Furious*, and for full flying duties in 421 Flight (on transfer of Flight).

Lieut.-Commr. (Flg. Off., R.A.F.) T. O. Bulteel, to *Argus*, and for full flying duties in 401 Flight (undated).

Lt. (Flt. Lt., R.A.F.) C. J. N. Atkinson, to *Courageous*, and for full flying duties in 404 Flight (undated).

Lts. (Flg. Offs., R.A.F.): T. H. Villiers, to *Columbine*, and for full flying duty in 406 Flight (June 14). H. Ditton, to *Cardiff;* and M. Cursham, to *Warspite* (undated); the Hon. J. M. Southwell, to *Benbow;* and R. G. Poole to *Rodney* (June 16). J. C. Richards, to *Courageous*, and for full flying duties in 416 Flight (June 1). S. Borrett, to *Vindictive*, temp., and for full flying duties in 444 Flight (May 11); and J. H. I. Wood, to *Victory*, lent to R.A.F. Base, Gosport (June 16).

Lt. R. H. S. Roundell, attached to R.A.F., to join R.A.F. Base, Leuchars (June 17).

Sub-Lts.: P. W. Humphreys and B. H. M. Kendall, attached R.A.F. to join R.A.F. Base, Leuchars (June 17).

Sub-Lts. (Flg. Offs., R.A.F.): P. D. Heinemann, to *Furious* for D.L. training in 405 Flight (undated), and to *Hermes* for F.F.D. 403 Flight (on completion of D.L. training); W. R. Paris, to *Preside* for duty with D.S.D. (Aug. 18).

Surgn.-Commrs.—A. C. Shaw, M.B., to *President*, for three wee course at R.A.F. Medical School (Sept. 13), and to *Eagle* (Sept. 3).

Transfers to the Reserve.

The undermentioned officers serving on short-service co missions are due to transfer to the Reserve on the da indicated on the completion of their service on the act list of the R.A.F. :—

Flight Lieutenants.—*Oct.* 24, 1928: M. H. Butler, D.F.C., F. Clarke, E. C. W. Fitzherbert, M.B.E., D.S.C., F. Thomasson, D.F M.M., D. E. Ward. *Nov.* 28, 1928: O. W. Clapp. *Dec.* 1, 1928: E. Aslett. *Dec.* 3, 1928: W. Parsons. *Dec.* 12, 1928: H. W. McKen D.C.M. *Dec.* 18, 1928: C. N. C. Dickson, A.F.C.

Flying Officers.—*Oct.* 4, 1928: F. W. Mundy. *Oct.* 24, 19 S. Herbert, E. S. Osborn, L. A. Parker. *Oct.* 25, 1928: A. F. Linga *Nov.* 10, 1928: J. H. Caulfield, E. R. H. Coombes, T. A. Hale-Mur M. M. Miln, W. J. Pearson, V. A. C. Ross, P. Stainer, C. G. Sullivan, C. U. G. Tristram. *Dec.* 3, 1928: H. W. Allen. *Dec.* 5, 19 E. A. Turnbull. *Dec.* 9, 1928: C. G. H. E. Lumsden. *Dec.* 12, 19 D. D. McA. Eastwood. *Dec.* 13, 1928: A. G. Hill. *Dec.* 29, 19 H. R. V. Fowler.

Fatal Accidents in the R.A.F.

In the House of Commons on July 18, the Secretary of St for Air, replying to a question by Capt. Garro-Jones, s that the number of officers and men of the R.A.F. who h been killed since the beginning of this year was 50, cluding one officer shot down in action. This numb covered the R.A.F., the Auxiliary Air Force and the p sonnel of the Army and Navy attached. Of the 50, 30 w pilots and 20 passengers.

In reply to an additional question, Sir Samuel Hoare s that the total number of officers, cadets and airmen pil in the R.A.F. and Auxiliary Air Force on regular flying d was 2,706.

The Passing-out Inspection at Cranwell.

The Passing-out Inspection of R.A.F. cadets by Sir Phi Game, K.C.B., D.S.O., Air Member for Personnel, took pla at Cranwell on July 27.

The parade included practically the entire personnel the Cranwell Station and the drill and marching was of marked steadiness and accuracy. The personnel of station, other than the cadets, marched off after they h been inspected, and the cadets, under Flight Cadet Und Officer N. E. White, the winner of the Sword of Hono marched past the saluting base.

After the parade Sir Philip Game inspected the cadets the workshops and then went down to the flying-sheds a inspected the IV Term Cadets and the machines, which w lined up on the aerodrome.

The prize-giving and the reading of the Commandan report took place in the gymnasium.

Air Vice-Marshal F. C. Halahan, C.M.G., C.B.E., D.S. M.V.O., Air Officer Commanding, R.A.F., Cranwell, a Commandant of the Cadet College, in the course of report said that 111 cadets were under training and that were passing out. During the past term 60 per cent. of days had been fit for flying and the cadets had averag 76 hours each during the term.

In aeronautical engineering the work had been satisfacto and in aeronautical science the revised programme of w had been carried out smoothly and well. In history a literature the library had been well used by the IV Te and their work had been so good that it had been diffic to select a prize-winner. The work of the III and Terms had not been so good. The Cadet College Magaz had increased in size and now had an editorial staff cadets.

With regard to Service Training the syllabus had b revised, and included a fuller knowledge of wireless t graphy. There had been an improved interest in wirel telegraphy among the cadets.

On the whole, discipline had been good, but a fatal a dent during the term had been directly due to disobedie of flying orders.

The health of the cadets had been good, and a h standard of physical training had been attained. Box had been of a higher standard owing to increased keenn Cricket had been keen, but not very successful, proba because it had such a short season on account of athletics. In athletics six of the college records had b lowered this season, and Flt. Cadet Under-Officer Wh was to be congratulated on the success of his team and a for personally breaking the Sandhurst and Woolwich rec in the long jump.

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The Chimay Cup, for inter-squadron games, had been won by "A" Squadron with 21 points to 15 points by "B" Squadron.

The Trenchard Cup for Service subjects had been won by "B" Squadron. The Champion Squadron-at-Arms, with the right to parade on the right of the line, was "A" Squadron.

Air Vice-Marshal Sir Philip Game, K.C.B., D.S.O., congratulated the prizewinners, and also the cadet who had passed out top but who had not won a prize. He said that he had been very pleased with the parade, which had been very steady and had moved well. He thought it was the best parade by the cadets that he had seen yet. Parades were important, but there was a good deal else to do in the R.A.F. Intelligent people could move well on parade after very little drill.

He congratulated the cadets on the Commandant's report. Flying was the beginning of all things, but it was not the end of all things. He proposed to take the good parts of the report for granted and would only deal with the worst parts.

With regard to flying discipline, nobody wanted to turn the R.A.F. motto *Per Ardua ad Astra* into *Safety First*, but disobedience to orders and stunting near the ground was bad discipline and bad form. Stunting low was no more difficult than stunting high. It was merely a form of "showing off."

The Services were now more part of the nation than they had been in the past, and if they were to take their place in the national life they must be better educated, because the whole nation was becoming better educated.

He congratulated the cadets on their games record, and said that he hoped that they all played some sort of game. He implored them not to become onlookers, and said that it did not matter whether a man was an expert or not so long as he played the game himself. He wished the passing-out term every success in the Service, and hoped that they would all enjoy their leave.

Sir Philip Game then presented the Sword of Honour (for the best all-round cadet in the Senior Term) to Flt. Cadet Under-Officer N. E. White, the R. M. Groves Memorial Prize (for the best all-round pilot in the Senior Term) to Flt. Cadet Corporal Tindal-Carril-Worsley, the Abdy Gerrard Fellowes Memorial Prize (for Mathematics and Science) to Flt. Cadet Frank Whittle, the Prize for Humanistic Subjects to Flt. Cadet Sjt. H. J. Pringle, the Prize for Aeronautical Engineering to Flt. Cadet W. R. Worstall, and the other prizes as stated in the Commandant's report.—C. M. MCA.

The Flowerdown Passing-Out.

The eighth passing-out inspection of aircraft apprentices who have been trained at the Electrical and Wireless School was made by Air Vice-Marshal Sir Philip Game, K.C.B., D.S.O., at Flowerdown on July 26.

In his report the commandant, Group Capt. A. L. Godman, C.M.G., D.S.O., said that there were 275 aircraft apprentices under training at Flowerdown. The discipline and drill had been good, satisfactory technical progress h been made, and every aircraft apprentice of the passing-o entry had successfully operated wireless instruments in t air. The health of the apprentices had been good, and gre keenness had been displayed in the Gymnasium, on t Miniature Rifle Range, and in all sports and games.

Of the present Entry 13 had passed out as Leading Aircraftsmen, had passed out as Aircraftsmen, First Class, 5 had passed out Aircraftsmen, Second Class. There had been no failures.

Cadetships had been offered to L-AA. Shirley, T. U. C., who also the winner of the "Hyde-Thomson" Memorial Prize, and L-AA. Wrigley, H. B.

The following had been retained for the Advanced Course with view to passing out as Corporals:—L-AA. James, H. A., AA. Moo C. D.

L-AA. James, H. A. had won the prize offered by the Air Minis for the Aircraft Apprentice who obtained the Highest Aggregate Ma in all Sections.

AA. Hill, I. E., had won the prize offered by the Air Ministry the Aircraft Apprentice who obtains the Highest Marks in Techni Subjects.

AA. Moore, C. D., had won the prize offered by the Air Minis for the Aircraft Apprentice who obtains the Highest Marks in Edu tional Subjects

The Halton Gymkhana.

A Mounted Gymkhana and Aerial Display in aid of t Halton Polo and Hunt Club and the Halton Light Aeropla Club was given at Halton Camp on July 26.

The programme began with an exhibition of formati flying by No. 41 (Fighter) Squadron on five Siskin III. (Jaguar engines). This was followed by an air combat, al on Siskins, between two pilots of the R.A.F. Halton Co mand. The third event should have been a dummy pa chute drop, but the pilot parachute got entangled in t dummy and did not pull out the main parachute. Th could not happen in a live free drop, a fact which shou be noted, as many people were scared by the imagin failure to open. This event was performed successfully lat in the day.

The next event was a light aeroplane race for wom pilots for a challenge cup and prizes presented by Sir Charl Wakefield. This was won by Miss Spooner, with Mi O'Brien second. Three mere males took the air at the sa time in a D.H.53, the H.A.C.II, and a Widgeon, to ma a field, and were handsomely beaten.

Three mounted events followed, a mounted bending ra mounted musical chairs and a hurdle race of the ki familiar to frequenters of Ranelagh and other places whe polo is played. A good field of R.A.F. and local sportsm and women turned out for each event. Among the co petitors was Miss Spooner, who handles a horse as well she does an aeroplane. Unfortunately, owing to the lar crowd of spectators, it was impossible for half of them get a view of these events.

One of the most attractive items on the programme was display of physical training by 150 aircraft apprentices. Th display included quick marching, double marching, figu

THE HALTON PARTY.—At the top is a corner of the machine park and at the bottom is the display by the massed drums, fifes and bugles of the Wing bands of the School of Technical Training (Apprentices) at Halton.

("*Aeroplane*" *photograph.*)

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CONSTITUTION OF THE GOVERNMENT COMMITTEE

By Minute of 2nd April, 1928, the following Members were appointed :—

Sir Frederick J. Willis, K.B.E., C.B., (*Chairman.*)
Mr. J. C. Bridge, F.R.C.S.E., M.R.C.P.E.
Sir George S. Buchanan, C.B., M.D., F.R.C.P.
Mr. A. Chaston Chapman, F.I.C., F.R.S.
Professor W. E. Dixon, M.D., F.R.S.
Major W. R. Galwey, O.B.E., M.C., M.B.
Mr. C. H. Lander, C.B.E., D.Sc.
Sir Charles J. Martin, C.M.G., D.Sc., F.R.C.P., F.R.S.
Mr. R. D. Pye, M.A.
Sir Robert Robertson, K.B.E., D.Sc., F.R.S.
Sir William Willcox, K.C.I.E. C.B., M.D., F.R.C.P.
Mr. S. F. S. Hearder (*Secretary*).

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marching and free standing exercises. The movements were accompanied by the band of the R.A.F., Halton, and no words of command were given. The P.T. instructors, the band, and the apprentices themselves are to be congratulated on a display which one believes could not be bettered by any training establishment in the world, despite, or because of, the fact that the performers were all volunteers, who, apart from the ordinary P.T. work, trained for the display in their own time.

Event nine was a light aeroplane race for members of an aeroplane club or private owners for a challenge cup presented by *The Bucks Herald* and prizes presented by Sir Charles Wakefield over three legs of a triangular course of about eight miles. The heats for this race had been flown during the morning. The race was won by Mr. T. N. Stack, R.A.F.O.

Two more mounted events were followed by a parade of Massed Drums of the Halton Command. The display consisted of about 150 airmen and aircraft apprentices from the three Wings at Halton. They marched and counter-marched in first-class style and drew rounds of applause from the spectators. These bands, composed of bugles and fifes in addition to drums, are a great feature at Halton, where the apprentices always march between workshops, schools, and barracks in wings accompanied by the wing band. This display ended with a march past of the Pipe Band, which originated in the Boys' Wing at Cranwell and came with that wing to Halton.

More mounted events came after this, followed by a slotted Moth demonstration and a display of advanced individual aerobatics and the destruction of a desert stronghold. The Gymkhana ended at 19.00 hours with a polo match between Old Berkeley and Whaddon Chase.

Owing apparently to the uncontrollability of the horse the programme was subject to a number of delays and a few alterations. Halton is to be congratulated on the energy and enterprise which arranged such a huge programme, but would probably be well advised in future to separate their gymkhana from their aerial display. Few types of mind are equally interested in horses and aeroplanes, and the size of the crowd and the number of cars prevented the spectators from seeing the ground events.—C. M. MCA.

The R.A.F. Swimming Championships.

The third annual championship meeting of the R.A.F. Swimming Association was held at St. George's Baths, Westminster, on July 28.

The standard of the swimming was particularly high all round and five new R.A.F. Records were made. Plt. Off. A. H. Westwood (Netheravon) lowered the R.A.F. record for the 100 yards Breast Stroke Championship, his time being 1 min. 24 3-5 secs.

In the 220 yards Championship L-AC. A. Henderson (Cranwell) won in 3 mins. 6 2-5 secs., 9 3-5 secs. faster than the holder's time last year.

In the 100 yards Back Stroke Championship, Flg. Off. W. W. Whitehead (Shrewsbury) beat his own record by 9 3-5 secs., his time being 1 min. 26 secs. The time of the second man in this race, AA. Chaney (Halton) was 1 min. 32 secs., 3 3-5 secs. better than last year's record.

Sjt. J. B. McGinn (Henlow) beat his own record in the Plunging Championship by 4 ft. 10 ins., his best plunge being 59 ft. 8 ins. Sq. Ldr. E. C. Emmett (Eastchurch) was placed second with 59 ft. 7 ins.

The fifth new R.A.F. Record was in the Inter-Unit Relay Race (120 yards), the final of which was won by the Gosport Team in 68 1-5 secs., 1-5 secs. faster than the previous record. The teams in this event were from S. Farnborough, Shrewsbury, Martlesham Heath, Manston, Halton, Henlow, Gosport, Digby and Uxbridge. They finished in the final, Gosport (1), Martlesham Heath (2), Henlow (3), after a most exciting, and, for the spectators, extremely damp, final.

It is to be hoped that by next year when the Aircraft Apprentices' Wing from Flowerdown has been added to its establishment, Cranwell will be able to send a team to compete in this event.

Miss Phyliss Harding, British Representative, Olympic Games, 1924, gave a short demonstration of her style of swimming, and three members of the Amateur Diving Association gave an extremely interesting and highly amusing demonstration of various forms of diving.

The results of the Championship events in detail were :—

440 *Yards.*—(1) Flt. Lt. C. E. N. Guest (Martlesham Heath), 7 min. 13 1/5 sec.; (2) AC. A. Reeve (Hawkinge).

100 *Yards Breast Stroke.*—(1) Plt. Off. A. H. Westwood (Netheravon), 1 min. 24 2/5 sec.; (2) AA. F. G. Watts (Halton).

220 *Yards.*—(1) L-AC. A. Henderson (Cranwell), 3 min. 6 2/5 sec.; (2) AC. R. Stanton (West Drayton).

100 *Yards Back Stroke.*—(1) Flg. Off. W. W. Whitehead (Shrewsbury), 1 min. 26 sec.; (2) AA. J. E. F. Chaney (Halton).

50 *Yards.*—(1) Sjt. A. J. Pegg (Tangmere), 28 3/5 sec.; (2) AC. R. D. S. Robertson (Kidbrooke).

Diving.—(1) AA. G. A. Watson (Halton); (2) AC. L. Richar (Uxbridge).

Plunging.—(1) Sjt. J. B. McGinn (Henlow), 59 ft. 8 in.; (2) S Ldr. E. C. Emmett (Eastchurch) 59 ft. 7 in.

100 *Yards.*—(1) Sq. Ldr. C. R. Carr (Uxbridge), 69 1/5 sec.; (2) A T. Brown (Wittering).

Final, Inter-Unit Relay.—(1) Gosport (Flt. Lt. J. S. Harrison, Fl Off. F. G. Jennings, Telegraphist F. L. Goodman, L-AC. E. Emerto 68 1/5 sec.; (2) Martlesham Heath (Flt. Lt. N. H. Jenkins, Flt. I C. E. N. Guest, Flg. Off. R. W. L. Glenn, Cpl. F. W. Morter), 69 4/5 se

Inter-Unit Water Polo.—Halton (AA. E. T. Watts, Cpl. T. B. Rc Cpl. C. W. D. Wright, AA. R. A. McKay, AA. E. A. Candy, AA. W. Hewitt, AA. F. McDermott) beat Eastchurch (Plt. Off. A. P. F. Berkeley, Cpl. C. Nicholls, L-AC. E. Gwilliam, Cpl. T. Pithouse, C J. M. Fitch, Plt. Off. J. A. H. Louden, L-AC. E. Wiles) by 3 goals to

In the previous rounds Halton had beaten West Drayton 6– Martlesham Heath 4—1, and Shrewsbury 6—4.

Wing Cdr. R. J. Mounsey was the Referee.

During the short intervals between Flt. Lt. Bennett's a nouncing whistle, the String Band of the R.A.F. played sui ably wet music, *e.g.*, " Old Man River."

The Challenge Cups and Medals were presented to t Winners and Runners-up after each event by Mrs. C. Lambe. The meeting was excellently organised, and carri through without a hitch.—C. M. MCA.

CORNERING.—A D.H. Moth (D.H. Gipsy engine) in the Light Aeroplane Race at Halton during the Gymkhana and Air Pageant on July 26. Halton House, which formerly belonged to the Rothschild family and is now the Officers' Mess of the Station, is seen in the background.—(" *Aeroplane* " *photograph.*)

Inter-Services Swimming.

The Inter-Services' Swimming Meeting is being organis by the R.A.F. Swimming Association this year and will held at Halton from Aug. 31 to Sept. 3. The programr will be as follows :—

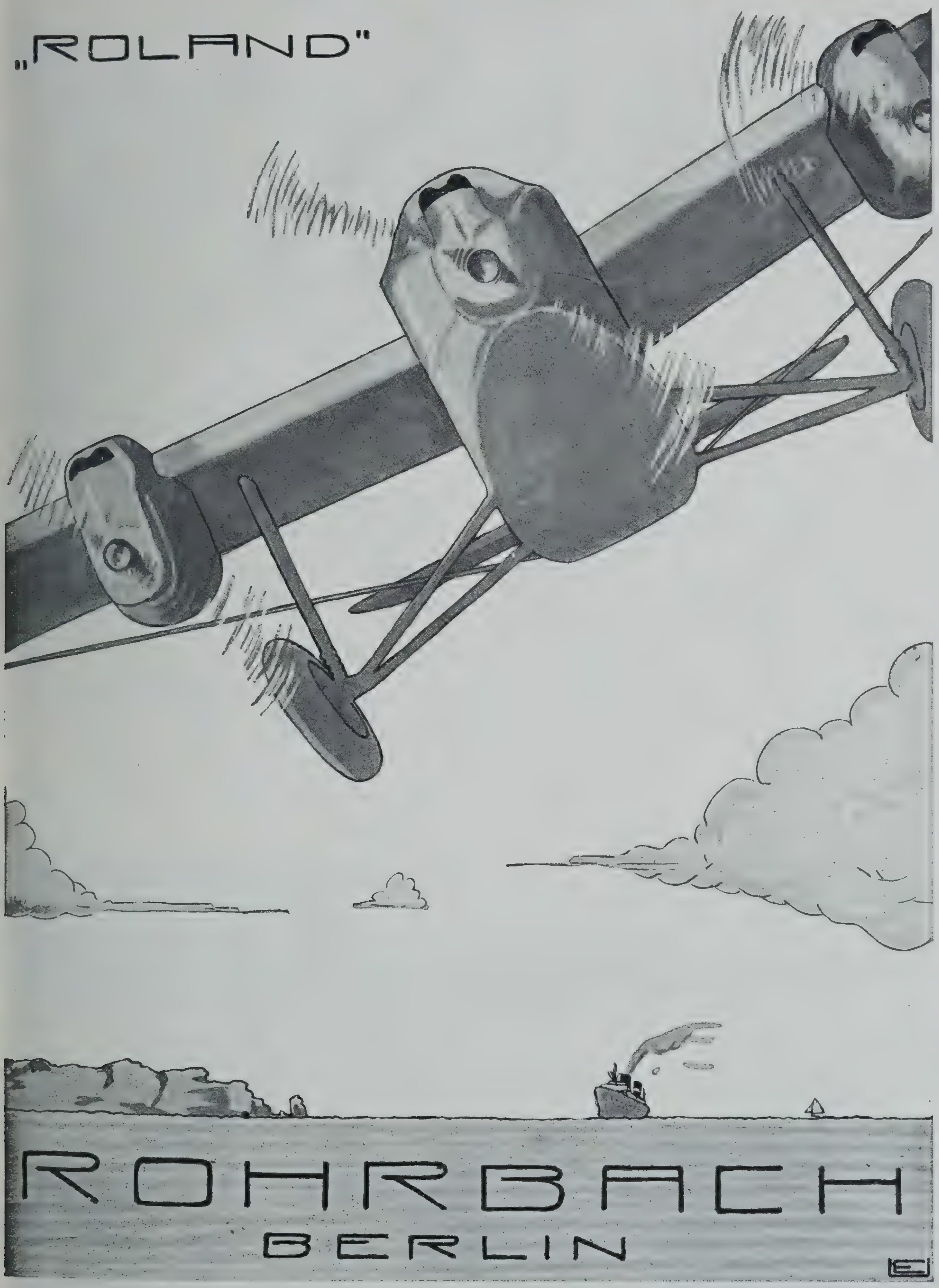
Aug. 31, Water Polo, R.A.F. *versus* R.N. Sept. 1, Water Polo, Ar *versus* R.N. Sept. 3, Water Polo, R.A.F. *versus* Army. Sept. 3, Int Services Swimming Championships.

AN R.C.A.F. MOVE.

The Canadian Government is shortly to remove the pri cipal landplane training centre of the Royal Canadian A Force from Camp Borden to Montreal.

In an area south of the St. Lawrence River, opposi Montreal, the Government has a large tract of land boug by the late General Sam Hughes when Minister of Milit for a training camp, but the pacific trend which set in aft the War prevented development of this area.

This land is close to St. Hubert Aerodrome, which h been chosen as the site for the Eastern Canadian airsh mooring-mast and base, and this aerodrome is being c veloped as a civil centre by the Canadian Government.



IF . . . .

If one engine fails, what———?
Most aeroplanes equipped with two engines, or three, would be compelled to make a forced landing in this case.
Forced landing, that means: late arrival, perhaps danger to passengers, pilot and craft.

There is only one three-engined all-metal aeroplane in the world which maintains straight level flight (under full load) with only two engines running:

THE "ROHRBACH ROLAND."

THE FAR EAST FLIGHT.

The log of the Far East Flight of four R.A.F. Supermarine Southampton flying-boats (Napier Lion engines) under the command of Group Capt. H. M. Cave-Browne-Cave for the section from Karachi to Singapore, is now available and follows in full.

The distance flown, which included the first flight round the Coasts of India and Ceylon, was 4,600 nautical miles. The total distance covered by the Flight since leaving England is 9,434 nautical miles.

In a covering report the Officer Commanding emphasises that the programme was adhered to throughout. He states that during the flight the aircraft and engines have been very satisfactory. The only troubles of any importance were :—

(a) heavy deposits of barnacles gathered on the bottoms of all the hulls during the 12 days' stay at Colombo which greatly increased the take-off times of all the boats. When the hull bottoms were cleaned in shallow water at Trincomali the take-off performances returned to normal. Throughout the cruise it has seldom been possible to clean the bottoms of the hulls in deep water owing to the presence of sharks.

(b) a water leak occurred in the starboard engine of S.1152 due to the failure of a washer in the water supply system to the rear of the outer cylinder head. This necessitated shutting off the starboard engine for the last 20 minutes of the flight to Pulicat Lake. When the defective washer was replaced no further trouble was experienced.

(c) The eyebolt in the centre rudder which carries the connecting rod to the starboard rudder of S.1150 broke at Mergui. This was temporarily repaired before the flight left Mergui and the eyebolt was renewed at Penang.

The aircraft were moored out at Felixstowe on Oct. 13, 1927, and were brought ashore at Singapore on Feb. 29, 1928. During the whole of this period, mostly under tropical conditions, the aircraft have been moored out, except when actually flying and except for one day at Karachi, when they were brought ashore for the examination and cleaning of the hull bottoms. On arrival at Singapore the aircraft were brought ashore for thorough examination, cleaning and repainting.

This examination has shown the aircraft to be in very good condition and at no time have the metal hulls leaked. No wires have broken and the aircraft structures have required practically no adjustment.

The residents at each place visited have been most hospitable, doing everything possible to help the Flight and make their stay enjoyable. This has contributed materially to the success of the cruise and the Flight are grateful for it.

The weather conditions on the whole have been good. The only heavy rain encountered in flight being in Ceylon. At Penang and Singapore the Flight landed just in time escape heavy rainstorms. The presence of haze has m it difficult to get satisfactory photographs from the Morning mists delayed the start of the Flight from Chi Lake by one hour, and obscured the ground shortly af leaving Akyab. Apart from this the visibility has been go The sea has generally been calm to slight, but around Cey and on the Southern part of the East Coast of India it sufficiently rough to make a take-off in the open sea dang ous. As there were no forced landings this did not aff the Flight. The winds have seldom exceeded 15 m.p.h. have never been strong enough to interfere with the fligl The conditions inside the hull, when on the water, h been rather hot and sticky, especially from Rangoon to Sin pore, but no worse than in many ships in the same clima The usual day temperature in the hull on the water 80° to 85°F., and the maximum 97°F. (Rangoon). Si the aircraft have been brought ashore at Singapore temperature inside the hull with airmen working there ri to 100°F., in spite of awnings and every effort to maint good ventilation.

During the period of the cruise (December to Februa the whole of the route followed, with the exception of area round Ceylon and the Southern part of the East Co of India where flying-boats of existing types could only ta off in the open sea under favourable conditions, appeared be very suitable for the operation of flying-boats.

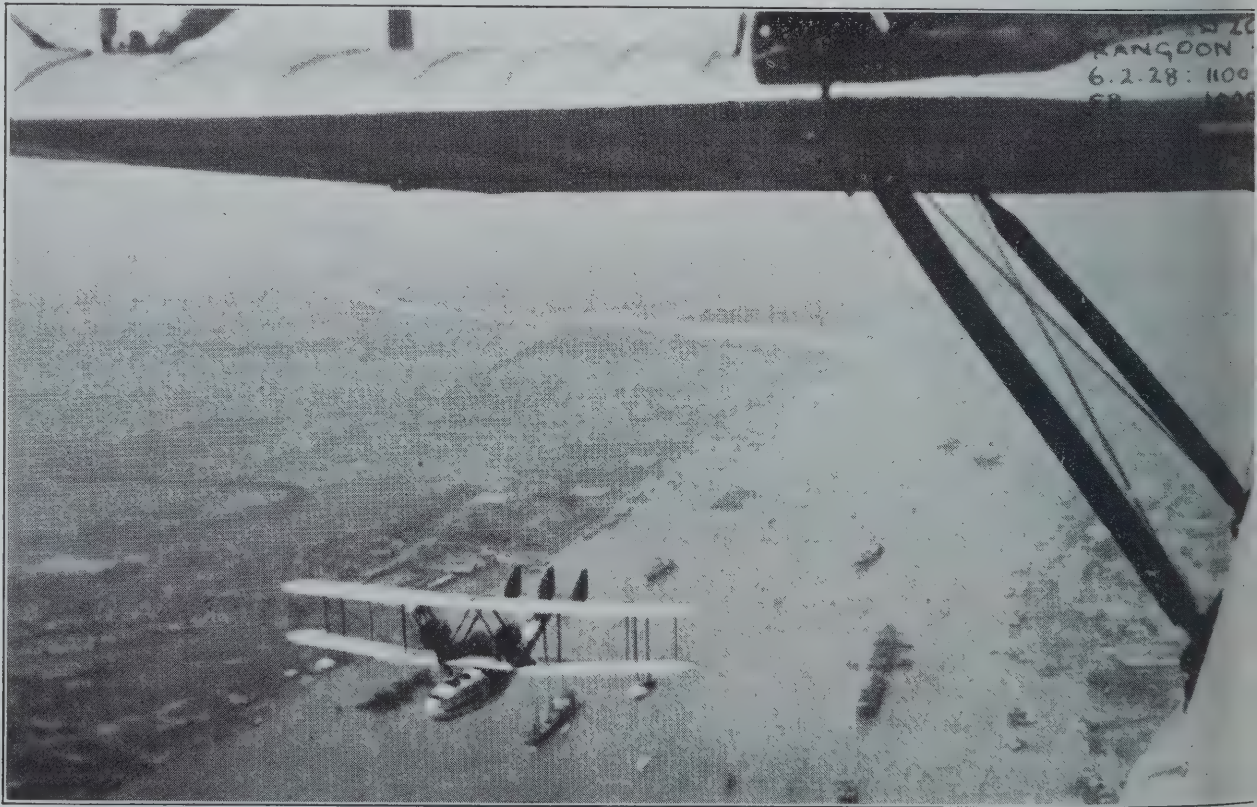
The visit of the Flight aroused considerable interest at e of the places visited; particularly along the Southern pa of the coasts of India, and at small places such as Pulicat a Chilka Lakes where the inhabitants had not seen aircr before. The Flight has been met on arrival at each port the authorities in charge of the arrangements and in m cases by the principal officers, officials and residents. Ca have been made at each port visited on the Governor, Co missioner or Resident, and on the principal authorities. quests were received from local authorities for the Fli to circle in formation and drop messages at Quilon Madras, and to fly low in formation over Diu, Allepi, vandrum, Muletivu, Point Pedro and Vizagapatam; these quests were complied with. The Flight formed an ae escort on the departure of H.M. The Emir of Afghanistan Bombay on Dec. 17, 1927.

The Base Party arrived at Singapore on Jan. 11, and everything ready for the arrival of the Flight.

THE LOG OF FAR EAST FLIGHT, R.A.F.

Dec. 14—Karachi. Aircraft of the flight were inspected by Air V Marshal Sir W. Geoffrey H. Salmond (A.O.C., R.A.F., India). officers and airmen slept in the flying-boats, which were re in all respects (500 Galls. Fuel) for the continuation of the cruis

Dec. 15—Karachi to Bombay, 475 N. Miles. (Flying Time 7 hrs



EASTWARD HO!—Supermarine Southampton flying-boats (Napier Lion engines) of the Far East Flight, R.A.F., flying over Monkey Point, Rangoon, on the section of the cruise between Karachi and Singapore. The Flight left Melbourne on July 30 for Sydney.

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mins. Average Ground Speed 68 *Kts.*) A.O.C. India embarked in S.1152 at 07.15. Flight took-off and left in formation for Bombay at 07.30 in fine weather with a S.E. wind of 2 m.p.h. and hull and strut temperatures at 70°F. Flight circled over Diu (Portuguese India) at 12.00, the Fort firing a salute, and landed in formation at Bombay at 14.30, securing to buoys off the Yacht Club. The weather conditions throughout the flight were good. Many very large fish could be seen during the flight, off the Kathiawar Coast.

Dec. 16 *to Dec.* 26—*Bombay.* Arrangements were made with the Royal Indian Marine for the loan of skiffs for communication between flying-boats and the shore and for a guard to keep the harbour traffic clear of the flying-boats. On Dec. 17, the Flight formed an aerial escort for the departure from Bombay of His Excellency, The Amir of Afghanistan.

On Dec. 19, H.E. The Governor and his A.D.C., went for a flight over Bombay in S.1152. The Flight refuelled to 400 gallons each on Dec. 19, taxying and securing to the stern of the fuel lighter, which was anchored close to the aircraft moorings. On the night of Dec. 26, all officers and airmen slept in the flying-boats in readiness for the flight on the following morning.

Dec. 27—*Bombay to Mangalore,* 395 *N. Miles.* (*Flying time* 5 *hrs.* 45 *mins. Average Ground Speed* 68 *Kts.*) The Flight slipped at 07.20, took-off in formation at 07.30 in a N.E. wind of 5 m.p.h., and left for Mangalore. At the request of The Director, Royal Indian Marine, the Flight opened out and searched near Janjira for any signs of the wreck of the *Jayanti,* a small coasting steamer of The Bombay Steam Navigation Co., which had been sunk in this area with all hands by a cyclone on Nov. 12, and could not be located. The water was muddy and nothing was seen of the wreck: this was reported to The Director, Royal Indian Marine, and The Bombay Steam Navigation Co., who replied, thanking the Flight for the trouble taken.

The Flight reached Mangalore without incident and landed there at 13.15, securing to buoys laid off the Customs House. The Southamptons were the first aircraft to be seen here, and large numbers of visitors, both European and Native, had come in from the surrounding districts to see the Flight arrive. The whole shore and quay were packed with natives, who remained watching the flying-boats until long after dark, and were there again by daylight the following morning.

Dec. 28—*At Mangalore.* Many residents, both European and Indian, visited the flying-boats during the day. It was a fine, clear day, and the noon conditions were, Wind W. 5 m.p.h.; Temperatures: Strut, 81°F., Hull, 82°F., sky clear. The crowds on shore remained watching the boats all day.

Dec. 29—*Mangalore to Cochin,* 195 *N. Miles.* (*Flying time* 3 *hrs.* 15 *mins. Average Ground Speed* 60 *Kts.*) (NOTE: The lower average ground speed is mainly due to the time spent in taking-off in succession, and in circling Mangalore, Calicut and Cochin during a short flight.) At 11.00 the Flight took-off in succession, each boat remaining at its buoy until the boat before it was in the air; this was necessary owing to the smallness of the area with a sufficient depth of water. The water-front was crowded; the whole population of the district appeared to have come down to see the Flight leave, and they shouted and cheered as each boat took-off. After picking up formation and circling Mangalore, the Flight set course down the coast, circling Calicut at 13.00, and landing in formation at Cochin at 14.15. As the Flight were the first aircraft to visit this coast, the Port Officer, Mangalore, had informed the authorities of the towns on the route of the approximate times the Flight would pass over, and the beaches near the towns and villages were crowded. The coast was very picturesque, with many rivers, lagoons and backwaters, which appeared from the air to be very suitable for emergency landings if the depth of water is adequate. On arrival at Cochin, the Flight secured to buoys in the harbour about ¾-mile N.E. of the town.

Dec. 30—*Cochin.* The Flight, being the first aircraft to be seen at Cochin, aroused the greatest interest; crowded boats of all descriptions were continually passing round the area reserved for the flying-boats, and crowds watched the aircraft all day from the shores of the harbour; even the water-front of Ernakulam, the native capital of Cochin, which is 1¼ miles from the flying-boat moorings, was crowded with people, although they had been told that the Flight would not leave until 09.00 on the following day. The weather conditions at noon were: Wing variable and under 5 m.p.h., Sky .2 clouded, Temperature 80°F. Strut, 83°F. Hull.

Dec. 31—*Cochin to Colombo,* 315 *N. Miles.* (*Flying times* 4 *hrs.* 30 *mins. Average Ground Speed* 69 *Kts.*) The weather was fine and clear, with light, detached clouds to the S.E. and a N.E. wind of 5 m.p.h. The Hull and Strut temperatures were 78°F. The Flight slipped together and took-off in formation at 09.00 in 35 seconds. After circling Cochin and Ernakulam, the Flight left for Colombo, circling in close formation over Alleppi, Quilon and Trivandrum, and dropping a message of greeting to the residents of Quilon in accordance with requests which had been received. Throughout this part of the route the Flight appeared to arouse great interest; the beaches and open spaces near the towns and villages being crowded. As Cap Cormorin was approached the weather became overcast and the wind increased to about 20 Kts. from the N.E., raising a nasty sea in the Gulf of Manaar, which moderated near Colombo. The Flight landed in succession in Colombo Harbour at 13.30 near the S.W. arm of the breakwater, and secured to four buoys which had been specially laid near the northern end.

Jan. 1 *to Jan.* 11, 1928—*Colombo.* Many visitors were shown over the flying-boats, including the Master Attendant, the Senior Naval Officer, the Chairman of the Special Commission on Ceylon Reforms, Sir Geoffrey Butler, the Inspector-General of Police and many Naval and Harbour Officers.

During the stay at Colombo there were several heavy rain and thunderstorms, mostly in the evening and at night. The average hull temperature at noon was 82°F.

The eight airmen of the flying crews were sent to the Naval Rest Camp at Diyatalawa in two parties, the first from Jan. 3 to Jan. 6, and the second from Jan. 7 to Jan. 10. This complete change was of great value to the Flight.

Jan. 12—*Colombo to Trincomali,* 290 *N. Miles.* (*Flying time* 4 *hrs.* 45 *mins. Average Ground Speed* 60 *Kts.*) The Duty Officer and airmen slept on board. Remaining officers on board by 07.00. weather conditions were dull, wind, N.E. 10 m.p.h.; sky, half-clou at 1,000 to 1,500 feet; hull and strut temperatures, 77°F. A consi able crowd collected on the S.W. arm of the breakwater to see Flight leave. The Flight took-off in succession at 08.00, the times va ing from 45 to 55 seconds, being much the worst experienced so during the cruise, more especially as the fuel load was only 400 lons in each machine. The long take-off was due primarily to thick deposits which had formed on the hull bottoms during the of 12 days at Colombo. An examination of the hull bottoms dur the flight from Cochin to Colombo had shown them to be practic free from growths. The swell in the harbour may have lengthe the get-off a little, but it was not serious and the poor accelerat was noticeable directly the engines were opened out. Whilst S. was taking-off, a seagull flew into the starboard airscrew, and dead body remained jammed at the base of the "V" struts under engines until the aircraft landed at Trincomali; the metal airsc was undamaged.

After circling Colombo in formation the Flight left for Trincom S.1149 and S.1150 flying round the South of the Island, S.1151 S.1152 round the North. The former found the clouds very low n Galle and came down to 20 feet, flying along the edge of the be for about 10 minutes. The clouds then lifted and the aircraft clim to 500 feet off Dondra Head and shortly afterwards a torrential ra storm was passed through. S.1150 steered out to sea for a mile or t and thus avoided the centre of what apparently was a small cycl storm, but S.1149, in the centre of the storm, had a most anxi five minutes. The rain, descending in torrents, almost blinded pilot, who could not see the water above 20 feet. The whole face of the sea was covered with swirling foam and the heavy bu made the aircraft almost uncontrollable. The engines dropped rev tions and ran unevenly and the pilot had the greatest difficulty avoid being forced on to the water, which was too rough for a landing and take-off. After about 5 minutes the conditions proved, the aircraft regained touch, and no further difficulty experienced, although several heavy rainstorms were seen and avoi When passing the game reservation on the South Coast, a numbe elephants, buffalo, boar, sambar, deer and monkeys were seen. S. and S.1150 landed at Trincomali at 12.45. A number of la lagoons, which appeared from the air to be suitable for seapla were seen on the South and South-East coasts of Ceylon. S. and S.1152, flying North-about, experienced North-East winds up 20 m.p.h. and occasional light rain on the West Coast; they pa over Punerin and followed the water-ways across the North of Ce and thence down the East Coast with an Easterly wind of a 20 m.p.h. and a rough sea. The aircraft landed at Trincomali 12.35 in an interval between the showers.

Jan. 13 *to Jan.* 18—*Trincomali.* The weather was generally fine there were several short periods of heavy rain. The hull temp ture during the day averaged 80°F. and the wind was generally up to 15 m.p.h. All the flying-boats were taxied in turn to shallow water (4 to 5 feet) in front of the Naval Sick quarters, wh there is a smooth sandy bottom, and were secured to the pier t and the shore so they were just afloat. The officers and airme the Flight, assisted by three seamen and six coolies, removed the w and barnacles from the bottoms with hand scrubbing brushes pieces of wood. The barnacles were firmly fixed to the paint, wh generally came away with them, and as most of the cleaning ha be done with the head under water it was most exhausting. A passed under the boat and worked backwards and forwards above water line was found very useful for clearing the area near the k The time taken to taxy in the boat, secure it, clean the bott flight test and secure to the moorings, was about 2½ hours per b and the work on the four boats was spread over two days. far as could be judged by inspection under water and by flying over observers, practically the whole of the deposits on bottoms had been removed. The flight tests showed that average time for take-off with the clean bottoms was 30 seconds, c pared with the 50 seconds required with the dirty bottoms at Colo with approximately the same load and weather conditions. result was confirmed by get-off tests of S.1150 immediately before after cleaning. As a result of the hard work under water, a nun of the officers and airmen suffered from ear-ache. This was c by syringing out the ears.

Jan. 19—*Trincomali to Pulicat,* 325 *N. Miles.* (*Flying time* 5 30 *mins. Average Ground Speed* 60 *Kts.*) Airmen slept on bo all officers on board by 06.00. The morning was fine with a wind of 5 m.p.h; sky, .3 clouded; hull and strut temperatures, 77 barometer, 29.00. The Flight took-off in formation at 06.50 in seconds. In accordance with requests which had been received f local authorities, the Flight followed the coast, dipped at Mule (07.45) and circled in formation over Point Pedro (08.30). Ma was reached at 12.00, and after circling the town twice in format a message for H.E. the Governor was dropped. The Flight la at Pulicat Lake at 12.20, in an area of adequate depth marked flags near the South end of the Lake, and secured to the buoys which had been laid for it. Throughout the flight the was approximately N.E. 12 Kts., rather more in the Palk Straits rather less and more Easterly further North. South of Madras open sea was too rough for a take-off in the open to be safe. flying conditions generally were good with short periods of h bumps over the land.

The only trouble experienced during the flight was a water in the starboard engine of S.1152, due to the failure of the small wa on the rear water connection to the starboard cylinder head. throttle of the starboard engine was then closed until the Flight rea its refuelling base at Pulicat at 12.20. The aircraft lost about feet during the 20 minutes' flight on one engine. On landing, defect was made good and examination of the engine showed i be undamaged.

Jan. 20—*Pulicat to Coconada,* 300 *N. Miles.* (*Flying time* 5 0 *mins. Average Ground Speed* 60 *Kts.*) A fine morning except

At it again!

INTERNATIONAL LIGHT AEROPLANE MEETING

Organised by the Rotterdam Aero Club, held on July 20th, 21st and 22nd at Rotterdam.

CIRRUS

MOTH

WON PRINCIPAL COMPETITION

(*Pilot:* LADY HEATH)

The winner of this open competition was determined by the number of points scored in four separate events, consisting of Climb, Speed, Landing and Take-Off. Lady Heath obtained the HIGHEST AGGREGATE SCORE proving conclusively that the Moth possesses to the fullest extent the qualities desirable in a light aeroplane. It was the fastest machine in the Speed Event, registering 98·8 m.p.h.

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"THE BEST
LIGHT AEROPLANE
IN THE
WORLD"

★

MOTH

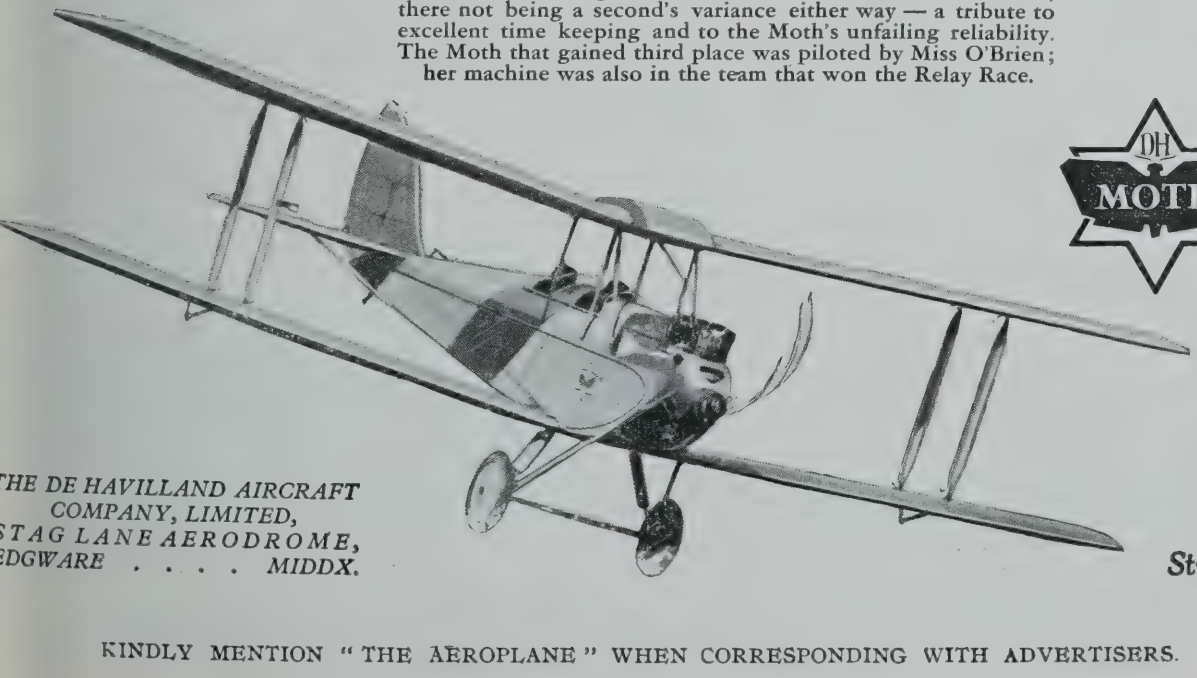
was also placed

FIRST and THIRD

in the

ARRIVAL COMPETITION

The winner was Capt. Cordes, who arrived DEAD ON TIME, there not being a second's variance either way — a tribute to excellent time keeping and to the Moth's unfailing reliability. The Moth that gained third place was piloted by Miss O'Brien; her machine was also in the team that won the Relay Race.



DH MOTH

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Streets

a few drops of rain at 06.35; wind, N.E. 10 m.p.h.; hull and strut temperatures, 77°F.; .8 clouded; barometer, 29.05; lake calm. At 06.45 Flight took-off in succession, having warmed the engines through at the moorings. Average take-off time: 26 seconds (350 gallons fuel). Throughout the flight the weather was fine with blue sky. A few cumulus clouds about 1,000 feet were met occasionally, causing bumpy conditions beneath them. The wind was E.N.E. from 8 to 12 Kts. The open sea, which had been moderate off Pulicat, gradually reduced to slight at Coconada as the Flight went further North.

Jan. 21 and Jan. 22—In Coconada. The weather was fine, and the hull temperatures during the day averaged 78°F. The wind was composed of the land and sea breezes up to about 10 m.p.h., which at times raised sufficient chop in the shallow water of this exposed anchorage to make it advisable to close the scuttles.

Jan. 23—Coconada to Chilka Lake, 225 N. Miles. (Flying time 3 hr. 45 min. Average Ground Speed 60 Kts.) A fine morning with .7 cloud; wind, N.E. 5 m.p.h.; barometer, 29.1; hull and strut temperatures, 75°F. Major C. Hodding (O.C. East Coast Battalion, Auxiliary Force) was carried (with the approval of Army H.Q., Madras), as a passenger on this flight, in S.1151.

The Flight took off in formation in 30 seconds, and after circling in Coconada, left for Chilka Lake at 07.00, following the coast the whole way and circling over Vizagapatam, where large new harbour works are in progress. When completed, this port might be suitable for a seaplane base. Several rivers were passed, which appeared to be suitable for emergency landings. After circling the large crowds which had collected near the Rambha Palace, and on the shores of the South end of Chilka Lake, the Flight landed in formation at 10.40. The Flight was welcomed by the Rajah of Khallikote and Atagada, who entertained the Flight most generously during their stay.

The Flight were the first aircraft to be seen in this area, and their visit created great interest. The Rajah of Khallikote had invited a large house party to meet the Flight including the Rajahs of Nilgire and Mandasa, and the District Officers from the neighbouring districts. Large crowds of Indians had assembled on the shores of the lake, and special trains were run to bring in the residents from the more distant areas. The Rajah gave large luncheon and dinner parties, and after the latter, the villagers of the surrounding villages gave very interesting displays of sword-dancing and their ancient methods of warfare.

Jan. 24 to Jan. 26—Chilka Lake. The weather during the stay was fine with light land and sea breezes. The day temperature in the hull varied from 77 to 84. On two days there were morning mists on the lake from 06.00 to 08.30, which would have made it dangerous to take-off or land during this period. S.1149 made a local flight on Jan. 26, carrying the Rajah of Khallikote and the Rajah of Mandasa and his brother as passengers. The native boatmen made large profits by taking parties from the shores of the lake round the flying-boats.

Jan. 27—Chilka Lake to Calcutta, 290 N. Miles. (Flying time 4 hrs. 10 mins. Average Ground Speed 70 Kts.) A misty morning with no wind; temperature, 74°F.; barometer, 29.00. The mist did not clear sufficiently for the flying-boats to take-off until 07.40; the Flight then slipped, took-off in formation, and after circling and dropping a message of thanks at Rhamba Palace, left for Calcutta at 07.50. The low clouds and mist slowly cleared with the sun, leaving some detached clouds about 1,000 feet and a slight haze. The sea was calm and the surface wind light Easterly at first, backing to Northerly near the Hoogli, the upper wind appeared to be Southerly. The coast, which is low-lying and has many rivers apparently suitable for emergency landings, was followed to Maipara Point, and the course was then set for the mouth of the Hoogli and thence up-river to Calcutta, which was circled at 11.45.

The Flight landed at Ichapur, on the Hoogli, some 15 miles North of Calcutta, at 12.00, and secured to the buoys which had been laid there about 100 yards from the East bank of the river. The tide was running out at about three knots, and the R.I.M. seamen in the skiffs attending the flying boat found considerable difficulty in bringing their boats alongside the aircraft safely.

Jan. 28 to Feb. 2—Calcutta. In spite of the distance to Ichapur, H.E. the Governor and many visitors came out to the flying-boats and were shown over them. The officers and airmen on duty in the flying-boats found many mosquitos on board at night.

Feb. 3—Calcutta to Akyab, 315 N. Miles. (Flying time 4 hrs. 30 mins. Average Ground Speed 70 Kts.) A fine morning with no wind; slight mist; hull and strut temperatures, 65°F.; barometer, 29.1; tide running out at 2 Kts.

Colonel Shelmerdine, Director of Civil Aviation, India, embarked in S.1151 at 06.30 for flight to Akyab and Rangoon, in connection with the proposed Civil Air Route. The Flight slipped at 06.45 and whilst taxying slowly, S.1151 touched a sand bank near the centre of the river about half a mile below the mooring site; this caused no damage. The Flight took-off in formation at 07.05 and after circling Calcutta in formation at 07.25, flew on a compass course over the Sundarbans to Shahpuri Island, and then down the coast of Akyab. The Delta is jungle, swamp and small paddy fields, with many rivers and creeks where a seaplane could land, but with no landing place for a landplane.

The Flight landed in formation at Akyab at 11.35.

Feb. 4 and Feb. 5—Akyab. The weather was fine and calm; cool at nights with hull temperatures up to 85°F. by day. All airmen slept on board on Sunday night.

Feb. 6—Akyab to Rangoon, 320 N. Miles. (Flying time 4 hrs. 10 mins. Average Ground Speed 76 Kts.) Lieut.-Col. Shelmerdine, Director of Civil Aviation in India, took passage in S.1151. A fine, but misty morning; wind, N.N.W. 3 m.p.h.; strut and hull temperatures, 70°F.; barometer, 29.00.

The Flight took-off in formation in from 35 to 40 seconds at 07.00 and were clear of the mist at 800 feet. The mist was lying over the land from about 2 miles North to 20 miles South of Akyab; it was clear over the sea but sufficiently thick over the land to shut out all sight of the ground except for occasional small patches. At first the Flight flew some miles to seaward to keep clear of the n afterwards, following the coast, which was mostly picturesque, rug and well wooded with many rivers and bays which appeared suit for emergency landing places. At 09.55 the Flight turned inland Broken Point and steered direct to Rangoon; for the first 20 mi the creeks and rivers were small, but afterwards there were m stretches of water which appeared suitable for landing. After circl Rangoon in formation, the Flight landed in succession off Mon Point at 11.10 and secured to buoys in the creek there, just at the pier by the Air Survey Co.'s slipway.

Feb. 7 to Feb. 12—Rangoon. The weather was fine with he morning mists on several days, which persisted up to about 0 Light Northerly winds prevailed and it was hot, the maximum temperatures being 97°F. The maximum tide was about 4 Kts.

The visit of the Flight aroused a great deal of interest and la numbers of visitors were shown over the flying-boats. All offi and airmen slept in the flying-boats on Sunday night.

Feb. 13—Rangoon to Mergui, 310 N. Miles. (Flying times 4 hrs. mins. Average Ground Speed 73 Kts.) A fine morning with sli haze; wind, North 5 m.p.h.; hull and strut temperatures, 71°F.; clouds; tide 2 Kts. Officer Commanding Troops and many oth came down to Monkey Point to see the start. The Flight slipped 06.40, taxied out of the creek, took-off in formation at 07.00, and a circling Rangoon, left for Mergui. S.1151 reported taking in wa during the take-off; this was found to be due to the lid of the lavat not having been fastened sufficiently tightly; this was rectified the water cleared out in flight. The conditions during the flight w fine, but hazy, and the wind Northerly, increasing to 10 Kts. in Gulf of Martaban. The course followed from Rangoon was do the Rangoon river to Elephant Point, thence across the Gulf Martaban to the mouth of the Ye river and down the coast, turn Eastward to pass over Tavoy, which was circled at 10.00, and do the Tavoy river and the coast to Mergui, where the Flight lan at 11.15 and secured to buoys laid near the East shore of Pataw Isl and opposite Mergui Town. The coast lines and the Mergui Ar pelago contain many places for emergency landings in seaplanes

Feb. 14 and Feb. 15—Mergui. The weather was fine, althou thunderstorms appeared to be threatening in the evenings. The was calm with an occasional slight swell at the moorings. conditions, both on shore, where there was no electric light or f and on the flying-boats were rather hot and sticky; the hull tempe tures in the middle of the day rising to 95°F. The wind was mai land and sea breezes up to 10 m.p.h. and the maximum tide at moorings was about 1 Kt. At night, considerable numbers of n quitos came out to the flying-boats from the shore. All the offic and airmen slept on board on the night of Feb. 15.

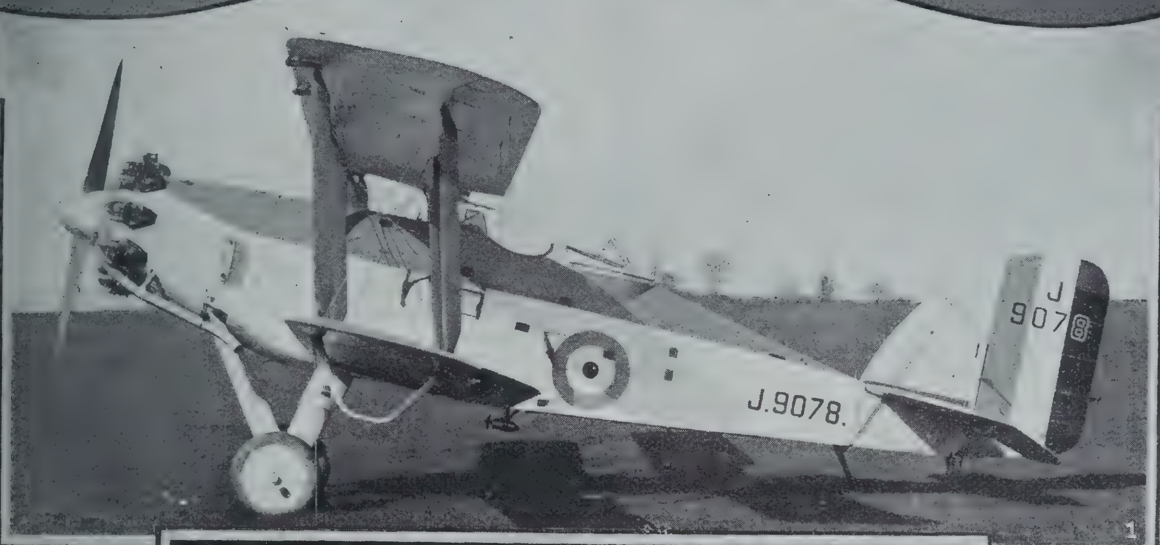
Feb. 16—Mergui—Penang, 475 N. Miles. (Flying times 6 hr. 25 mi Average ground Speed 74 Kts.) A fine morning with no wind; cloud; hull temperature, 78; strut temperature, 75; barometer, 28 tide, ½ Kt. Took-off in formation in 60 seconds (450 gallons) at o and circled Mergui. The connecting strut between centre and s board rudder of S.1150 was seen to be disconnected from centre rud and S.1150 was ordered to land immediately; this she did, follow by remainder of Flight at 07.10; all aircraft picked up their origi buoys. The defect in S.1150, which did not effect the control flying in any way, was found to be due to the breakage of the e bolt, in the centre rudder, which carries the connecting rod to starboard rudder. This was temporarily repaired by substituti for the broken eyebolt, a tommy bar suitably bent and drilled. short test flight showed that the repair was satisfactory.

The Flight took off again at 09.00 in 50 seconds and left Penang. Victoria Point was passed at 11.00, and after circling Pena the Flight landed in formation at 15.25, and secured to buoys wh had been laid off the Harbour Master's Pier at Glugor, about th miles South of George Town, Penang. The weather during flight was fine except for slight drizzle, which started when o Penang; the sky then looked very threatening to the Eastwa The winds were light, variable and Northerly; there was a sn amount of detached cloud and a slight haze. The route was dot with picturesque, wooded islands, many of which would afford shel in emergency, but might be of some danger to aircraft flying in heavy rain or bad visibility. At the time of the flight the sea calm and flying-boats could have landed or taken-off anywhere. fuelling to 250 gallons was started as soon as the flying-boats moored up, sampans being used to bring the barrels from the ligh to the flying-boats. By the time two boats had refuelled the thund storm, which had been seen in the distance before landing, br over Penang with a heavy downpour of rain and a wind which m it impossible to get the sampans with the fuel from the lighter the flying-boats. As this continued till dark, the remainder of refuelling was postponed till the next day, and officers and airmen duty went ashore as soon as the weather permitted.

Feb. 17 to Feb. 22—Penang. The weather was generally overca light rain fell nearly all one night and there were several show during the days, but there were no more heavy storms. It rather hot and sticky, except immediately after rain; the hull tempe tures varied from 78°F. at night to 92°F. during the day. The w was light and variable. The visit of the Flight to Penang arouse great deal of interest and many residents came out to Glugor were shown over the flying-boats.

Feb. 23—Penang to Port Swettenham, 160 N. Miles. (Flying ti 2 hrs. 20 mins. Average Ground Speed 68 Kts.) A fine, but d morning; wind, NE. 1 m.p.h.; hull and strut temperatures, 81° barometer, 29.00; sky, .9 clouded; tide, ½ Kt.

At the request of the Officer Commanding Penang and Port Welles Volunteers, the Adjutant, Capt. Prattley (Norfolk Regt.), who proceeding from Penang to Kuala Lumpur on duty, was carried as passenger in S.1150. The Flight took-off in formation in 25 to seconds (250 galls.) at 09.00, and flew down the coast in fine weath with detached clouds for the first hour, after which the clouds w continuous at 1,000 feet or lower, and there were occasional r squalls. Down to, and including Pangkor there appeared to be ma places suitable for emergency landings for seaplanes in bad weath



1

WESTLAND

2

4

WESTLAND AIRCRAFT

THE WESTLAND WAPITI.
(Photos 1 & 2.)

With Jupiter VI engine. A General Purposes Aircraft suitable for reconnaissance, bombing, wireless and advanced training, etc. Fitted with Handley Page Automatic Slot Gear. As supplied to the Royal Air Force.

THE WESTLAND WIDGEON.
(Photos 3 & 4.)

An ideal light 'plane for the private owner, club use, etc. Robustly constructed to exceedingly high standards a machine the excellence of which will be appreciated by the most experienced as well as the new pilot. Possesses exceptional controllability, even when in stalled flight. Folding wings—no rigging to require adjustment—excellent view for pilot and passenger. Low running costs.

ANOTHER SUCCESS.—Air League Challenge Cup won by a private owner flying a Westland Widgeon at the Midland Air Pageant, June 9th, 1928.

WESTLAND AIRCRAFT WORKS
(Branch of Petters Limited).
Contractors to the Air Ministry,
YEOVIL, ENGLAND.

but further South it was not so favourable. The Flight landed in formation at Port Swettenham at 11.20 and secured to buoys laid in a well-sheltered position.

Feb. 24 to Feb. 27—Port Swettenham. At the request of H.E. the Governor of the Straits Settlements, the flight to Singapore was postponed from Feb. 27 to Feb. 28, to enable him and his staff to fly down with the Flight. The Air Ministry and Singapore were informed of the change of programme. The weather was fine, except for one shower, but frequently overcast and it was hot and sticky, both in the boats (up to 90°F.) and on shore. The winds were light and variable and the tide ran up to 2 Kts. at the moorings.

Feb. 28—Port Swettenham to Singapore, 210 N. Miles. (Flying time 2 hrs. 30 mins. Average Ground Speed 84 Kts.) A fine morning. The noon conditions were: Wind, N.W. 3 m.p.h.; clouds, .5; barometer, 29.00; hull and strut temperatures, 92°F. H.E. the Governor of the Straits Settlements (Sir Hugh Clifford) and his staff arrived at Port Swettenham at 14.20 and were accommodated in different flying-boats.

The Flight took-off in formation at 14.35 and flew down the coast to Singapore. The wind was North-Westerly, 10 to 15 Kts. and the sky overcast for the majority of the flight. It was rather bumpy over the land but smooth over the sea. As the Flight flew South the weather became thundery with bad atmospherics, and several heavy rainstorms were seen in the neighbourhood of Johore Straits. The Flight ran into light rains over Singapore Town, and landed in formation at 17.05 in moderate rain, off the site of the Air Base at Seletar, securing to the buoys which had been laid there for them. A large party, including Lady Clifford, the Colonial Secretary, representatives of the General Officer Commanding, and the Senior Naval Officer had assembled at Seletar to welcome H.E. the Governor and the Flight. A guard from the Base Party was put on board the flying-boats for the night and all the flying crews went into Singapore where they were accommodated.

Notes: The flying-boats taking part are, S.1149, S.1150, S.1151, and S.1152, each with two Napier Lion engines.

Distances are in Nautical Miles.

Times are local for starting place of each flight.

A guard from the flying-boats' crews, consisting of one officer and four airmen, was maintained in the flying-boats at all times, e where otherwise stated. At each stopping place the Flight ci the town in formation on arrival and departure.

Table of Statistics.

Place.	Distance from previous port. (1)		Average Fl time per air (2)	
	Land miles.	Nautical miles.	H.	M.
Karachi	—	—	—	—
Bombay	546	475	7	—
Mangalore	453	395	5	45
Cochin	224	195	3	15
Colombo	362	315	4	30
Trincomali	334	290	4	45
Pulicat Lake	374	325	5	30
Coconada	345	300	5	—
Chilka Lake...	259	225	3	45
Calcutta	334	290	4	10
Akyab	362	315	4	30
Rangoon	368	320	4	10
Mergui	356	310	4	15
Penang	546	475	6	25
Port Swettenham	184	160	2	20
Singapore	241	210	2	30
Totals	5,290	4,600	67	50

Total local flying at Karachi—8 hours 40 minutes.

Total local flying, tests, escorts, etc., during the sta 5 hours 50 minutes.

The aircraft normally cruise at 1,000 feet with r.p.m. f 1,850-1,900.

The average Ground Speed was 66 knots (76 m.p.h.)

THE CALCUTTA IN LONDON.

From Aug. 1-3 one of the Short Calcutta flying-boats will be moored off the Terrace of the Houses of Parliament for inspection by members of both Houses, the Lord Mayor of London, members of Lloyd's, and other City organisations.

To provide a comparison in size between two of the latest developments in seaplanes, Colonel the Master of Sempill will fly a Blackburn Bluebird seaplane up the Thames and moor it alongside the Calcutta.

VICKERS AIRCRAFT BRANCH.

Vickers Ltd. hereby announce the formation of their subsidiary company, Vickers (Aviation) Ltd., to take over the manufacture of aircraft, aircraft accessories and equipment.

The directors are: Sir Robert McLean (chairman), and Sir Mark Webster Jenkinson, K.B.E., F.C.A. Mr. H. H. Duvall, A.C.A., is secretary. Mr. P. Maxwell Muller, M.B.E., and Capt. H. E. P. D. Acland have been appointed special directors.

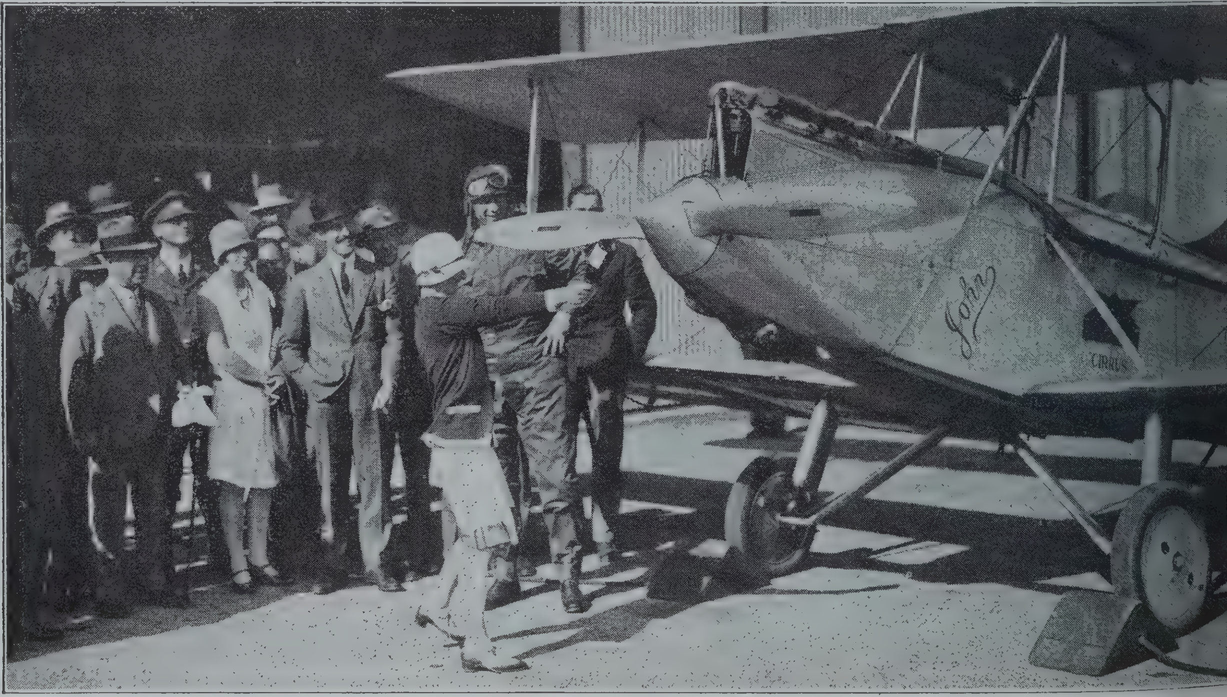
Before becoming associated with Vickers Ltd. in 1927 Robert McLean served in the Public Works Departmen India, becoming general manager of the Great In Peninsula Railway.

ANOTHER CAPE FLIGHT.

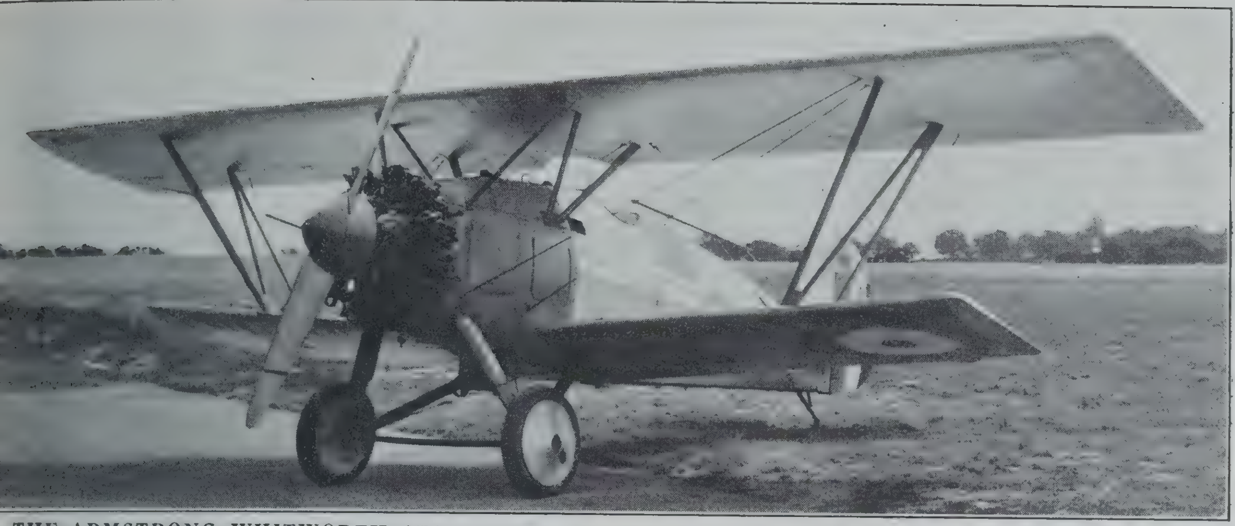
On July 29 Lieut. P. Murdoch, of the South African Force, left Croydon for Lympne on an Avro Avian (A. Cirrus II engine) as a start on an attempt to fly to Cape T in ten days.

Mr. Murdoch is being supported by Sir Robert Willi who is greatly interested in South African developments, the Avro Avian has been loaned to him by Mr. John B. B one of the founders of the Mexican Eagle Corporation.

Mr. Murdoch proposes to fly by way of Marseilles, Cat Malta, Benghazi and along the North African coast to Thence he will follow the Nile to Khartum, and then, way of Mongalla, Kisumu, Tabora, Broken Hill and toria, to Cape Town.



SOUTHWARD BOUND.—Miss Beatrice Body, daughter of Mr. John B. Body, one of the founders of the Mexican Eagle Corporation, christening the Avro Avian (A.D.C. Cirrus II engine) on which Lieut. P. Murdoch, S.A.A.F., is attempting to fly to Cape Town and back. The machine has been lent to Mr. Murdoch by Mr. John B. Body. (This method of breaking a bottle is not recommended, owing to the danger of the neck splitting in the hand of the baptiser, and of flying splinters.)



THE ARMSTRONG WHITWORTH STARLING.—A three-quarter front view of the latest Armstrong Whitworth [illegible] single-seat fighter fitted with the supercharged Jaguar engine.

E ARMSTRONG WHITWORTH STARLING.

ie latest production from the Whitley Works of Sir W.
rmstrong Whitworth Aircraft Ltd., is a single-seat high-
ormance fighter, called the Starling. The machine is
l with one of the latest supercharged Armstrong
eley Jaguar engines, its design being based on the
lard Siskin III type.

e principal characteristics of the new machine are a
all-round view, excellent manœuvrability, a high ceil-
and high speed at altitude. Metal construction is em-
ed throughout with the exception of the ribs in the
s and tail, and these parts on the later models will be
of steel.

e Armstrong Siddeley Jaguar engine is fitted with a
ey-Reed metal airscrew, the spinner being a composite
ruction, with metal nose and plywood base. Provision
ade for the attachment of an R.A.E. gas-starter.

e Starling with full load has a speed of 150 m.p.h. at
o feet and a ceiling of approximately 30,000 feet. Its
ng speed is about 50 m.p.h. Full service equipment is
ed, in addition to over 50 gallons of petrol and five
ns of oil.

NCERNING CANADIAN VICKERS LTD.

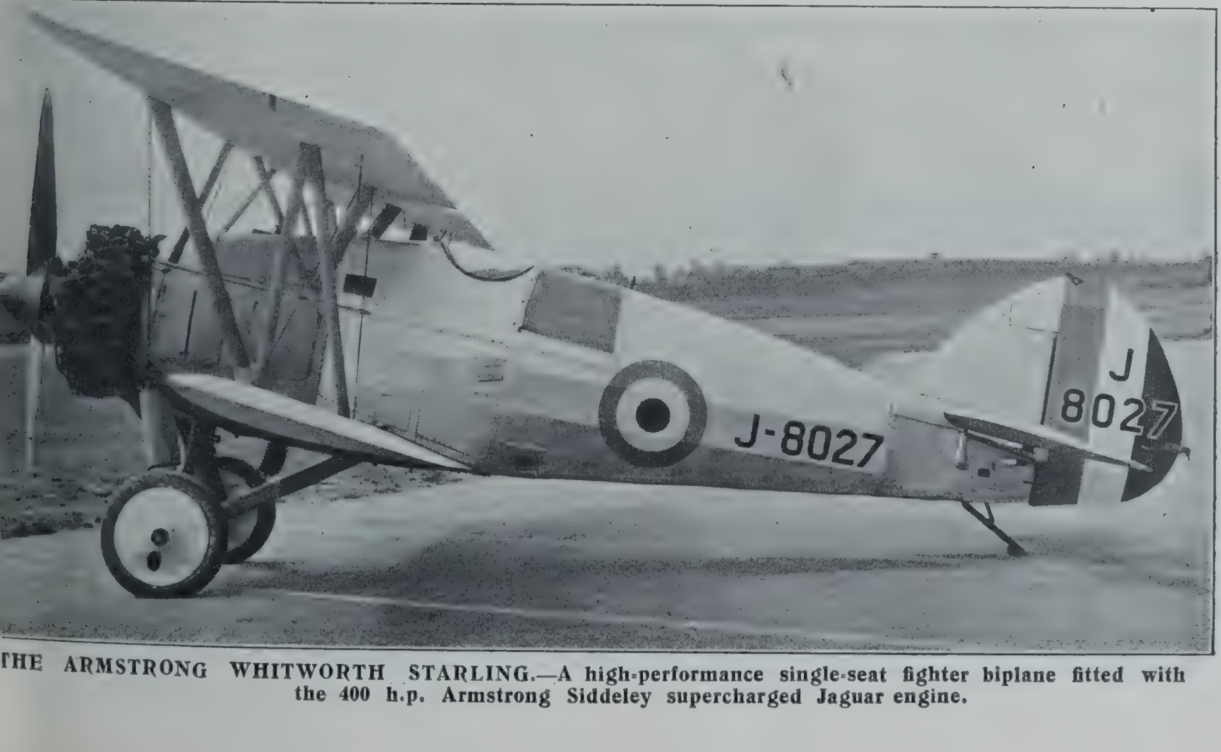
THE AEROPLANE of July 4 a statement was made that
Col. R. H. Mulock, C.B.E., D.S.O., late R.N.A.S. and
F., is now Operating Vice-President of Canadian
ers Ltd. A letter from Canada corrects this statement,
ing out that the Operating Vice-President of the Air-
Division of Canadian Vickers Ltd. is Mr. H. H. Ger-
Incidentally, the letter points out that Colonel Mulock
tually retired from the R.A.F. with the rank of full Colonel and that his rank is now that of Air Commodore in the Royal Canadian Air Force.

Air-Commodore Mulock is, in fact, retained by Canadian Vickers Ltd. for work in connection with aircraft and aviation in general, purely in a consulting capacity.

One had the pleasure recently of meeting Mr. German while he was visiting this country, and one can congratulate Canadian Vickers Ltd. on having him in charge of the aircraft work. Though he has only recently come into aviation one has met few men who have a more thorough grasp of the problems which confront anybody who sets out to build aircraft for use in Canada. As a trained engineer Mr. German naturally found the design and constructional side of aeronautical engineering comparatively easy, but he has evidently got just as firm a grasp on the operational side, an understanding of which is so essential to successful design and construction.

With Air-Commodore Mulock acting for the Company in an advisory capacity the aircraft division of Canadian Vickers Ltd. ought to do very well. Lookers-on see most of the game, and those who knew Air-Commodore Mulock in the R.N.A.S. will realise how much more valuable he may well be as a free observer giving advice than he would be when chained to an office desk. And his old friends will also realise that nothing short of chains would keep him at one.

The prospects for the aircraft division of Canadian Vickers Ltd. are particularly bright for, as noted recently, valuable additions have been made to the design staff, and one gathered from Mr. German that the organisation of the factory for production has also been very much improved. Certainly the best way for the British Empire to meet



THE ARMSTRONG WHITWORTH STARLING.—A high-performance single-seat fighter biplane fitted with the 400 h.p. Armstrong Siddeley supercharged Jaguar engine.

American competition is to manufacture in the British Dominions, and happily aircraft are still in the stage where the Dominions can manufacture their own, if British manufacturers will not make what the Dominions want, because the Dominions are not as yet up against American mass production.

CAPT. DE HAVILLAND'S HEIGHT RECORD.

On Wednesday, July 26, Capt. Geoffrey de Havilland, with Mrs. de Havilland as passenger, flying a Moth light aeroplane fitted with the De Havilland Gipsy engine, reached a height indicated by barograph as being over 21,000 ft. This reading is subject to correction, but under the conditions prevailing at the time the correction is likely rather to increase than to decrease this reading.

In any case the height as officially registered will appreciably exceed the previous record for the international two-seater light aeroplane class, which was 18,700 ft., by Herren Bohm and Losink on a Baumer monoplane (Oct. 9, 1927).

Thus one more World's Record stands to Great Britain's credit, through the efforts of the De Havilland Co.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending July 29

Flying Time 60 hr. 35 min. *Instruction* 21 hr. *Soloists* 39 hr. 35 min. *Soloists.*—Major Beaumont, Major R. M. S. Veal, Messrs. H. M. Samuelson, G. J. C. Paul, P. W. Hoare, I. C. Horton, W. Roche Kelly, E. L. D. Moore, C. Campbell, E. A Lingard, J. H. Saffery, O. J Tapper, B. B. Tucker, G. Robson, F. C. Fisher, G. Larden, T. E. Hearne, P. A. Wills, R. Malcolm, A. J. A. Miller, L. J. C. Mitchell, J. J. Hofer, A. C. Collins, J. C. V. K. Watson, S. Burt, R. Sanders Clark, E. J. Brough, A. F. Wallace. *Instruction.*—Miss Johnson, Miss Wilson, Miss Hicks, Mrs. Thatcher, Messrs. R. S. Rattray, H. W. Marlow, B. O. Davis, A. Pitt, R. M. Doidge, A. Hill Reid, A. C. Thomas, E. H. Thierry, C. W. Bonniksen, A. O. Wigzell, J. W. Radbone, L. G. Sykes, B. Carey, A. C. Collins, R. F. G. Adams, A. Courtauld, E. Davis, C. Peckham.

During the week Mr. E. A. Lingard, Mr. A. J. A. Miller, and Mr. P. A. Wills passed the tests for their Aviator's Certificates.

Holidays.—Members are reminded that the Club will be closed down for the Staff Holidays from Aug. 14 to 25, both days inclusive.

Pilot Instructor.—Mr. S. L. F. St. Barbe is relinquishing his post as Chief Pilot Instructor to the Club on Aug. 1 to take up another appointment in Civil Aviation.

Mr. V. H. Baker, the Chief Pilot Instructor of the Lancashire Aero Club, has been appointed to take his place. Mr. Baker wished to come South for family reasons, and the action of the Lancashire Aero Club, in releasing him to the London Aeroplane Club, is greatly appreciated.

The Lancashire Aero Club.

[Sec.: Woodford Aerodrome, near Stockport.]

Report for week ending July 28.

Flying Time 42 hr. 50 min. *Instruction* 22 hr. 35 min. *Soloists* 13 hr. 35 min. *Passenger Flights* 5 hr. *Tests* 1 hr. 40 min. *Instruction.—With Mr. Baker*—Messrs. Goss, Kay, Weale, Garner, Greenhalgh, Davies, R. G., Nelson, J. G., Faulkner, Ashworth, Gort, Fallon, Twemlow, Caldecott, Riley, Whitehouse, Williamson, Allott, Eckersley, Parkes, Mason, Agar, Davies, D. B., Stross, Nelson, D., Meads, Sellers, Mills, Secker, Harrison, Cheyne, Gattrill, Cundiff, Serck, Miss Baerlein, Miss Emery. *Soloists (under instruction).*—Messrs. Tweedale, Chart, Harrison, Garner, Sellers. *Pilots.*—Messrs. Nelson, D., Hardy, Mills, Lacayo, Fallon, Gort, Chapman, Meads, Leeming, Agar, Twemlow, Cattrill, Ruddy, Caldecott, Michelson. *Passengers.*—23.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending July 29.

Flying Time 26 hr. 10 min. *Instruction* 8 hr. 25 min. *"A" Pilots* 8 hr. 30 min. *Soloists* 20 min. *Passengers* 8 hr. 45 min. *Tests* 10 hr. *Instruction.—With Mr. J. D. Parkinson*—Mrs. Kish, Miss Lynden Bell, Messrs. Lawson, Leete, Kendrick, Walker, Temple, Moore, Hall, Lynden Bell. *"A" Pilots.*—Mrs. Heslop, Messrs. Irving, Runciman, W. B. Ellis, De Pledge, C. Thompson, Turnbull, Percy, Wilson, D Dixon. *Soloist.*—Mr. Moore. *Passengers.*—6.

THE LIGHT AEROPLANE HEIGHT RECORD.—Capt. Geoffrey de Havilland and Mrs. de Havilland after their successful attempt.—(*"Aeroplane" photograph.*)

On Sunday last Miss Leathart was obliged to make a forced landin with the "Grasshopper" and succeeded in putting down the machin in a very desolate part of moorland country. It was not until th next day after repairs had been effected that she was able to retur and from descriptions of the place it would appear that her take-o was a very fine effort.

We had the pleasure of a visit from Miss José Collins last Thur day. After a flight with Mr. Parkinson, she expressed her delig and a desire to become a private owner.

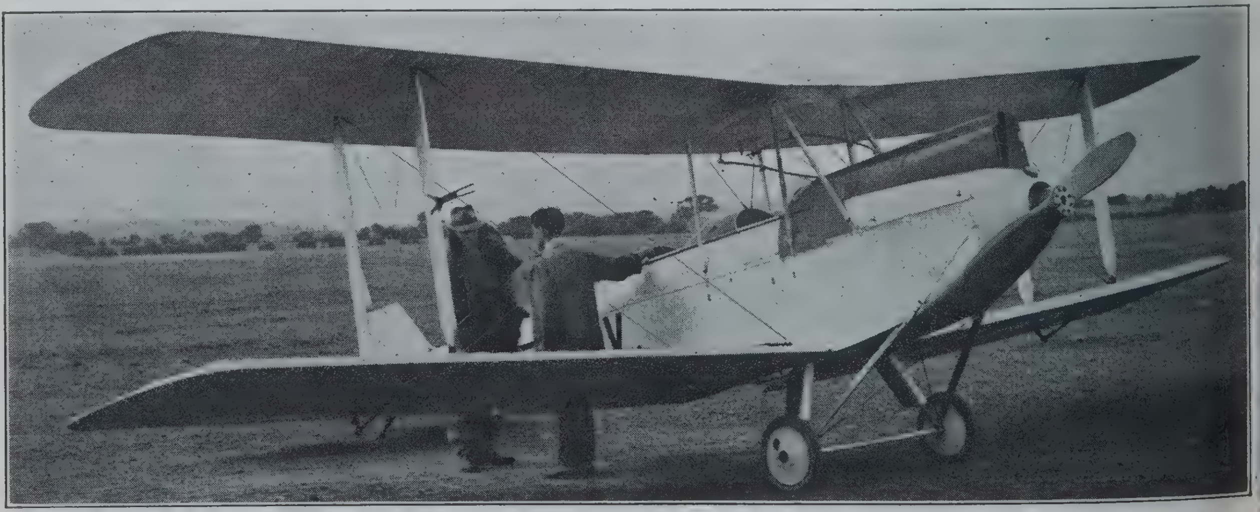
The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending July 28.

Flying Time 23 hr. 45 min. *Instruction* 10 hr. 25 min. *Soloists* 11 h 35 min. *Passengers* 1 hr. 45 min. *Instruction.—With Mr. Beck*—Mi Ellison, Miss Wilson, Messrs. Dujardin, Upton, Lloyd, Slater, Watso Gill, Lievans, Fitton, Campbell, Marriott, Roberts, Lupton, Collin Arundel. *"A" Pilots.*—Messrs. Thomson, Ellison, Wilson, Dick, Liste Ambler, Birch, Reynolds, A. Crowther, Clayton, Wood. *Passengers.*—

With the exception of Saturday we have staggered through th week with only one serviceable aeroplane, but on this day the Blac burn Aeroplane Company very kindly lent us TC to meet th exigencies of our first effort to combine with the motor-cyclin fraternity of the district. The Ilkley and District Motor-Cycle Clu were responsible for the grass track racing programme, and the Clu for the aerial exhibitions and "joy-riding," being helped in the latt by the Surrey Flying Services' Avro. Fair weather favoured the mee ing, with the result that we got a Gate of some 6,000 people, 3 or new members, and many inquiries, and one is of the opinion th similar shows will create new interest in the motor-cycling world ar at the same time bring a new sport to the heart of motor-cyclin enthusiasts, thereby bringing in new members of the Club.



THE HEIGHT RECORD MACHINE.—Capt. Geoffrey de Havilland and his "G" type Moth (Gipsy engine). —(*"Aeroplane" photogra*

And this was by nature of an experiment; we did not invite visitors, but on the strength of its success, invitations will be sent to private owners, manufacturers, and Clubs, in fact to anyone who would care to come.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Report for week ending July 28.

Flying Time 43 hr. 57 min. *Instruction* 25 hr. 13 min. *Soloists* 12 hr. 58 min. *Passengers* 4 hr. 43 min. *Tests* 1 hr. 3 min. *Instruction.—With Flt. Lt. Rose, D.F.C., and Mr. W. H. Sutcliffe*—Messrs. S. G. Hall, R. D. Bednell, W. M. Morris, G. P. Haylock, L. V. Mann, R. G. Welch, J. Cobb, M. A. Murtagh, J. R. Guthrie, T. H. Drury, L. H. Lee, G. C. Jones, O. L. Richards, H. Coleman, F. J. Steward, J. W. Astley, R. L. Brinton, R. B. Laidlaw, E. L. Hulme, S. Duckitt, N. Khatri, R. C. Baxter, Capt. J. C. Chaytor, Capt. H. G. Tower, Dr. W. G. Tilleke. *Soloists.*—Messrs. J. Rowley, R. L. Jackson, S. H. Smith, J. Cobb, G. E. C. Hill, G. G. Savage, E. J. Brighton, H. Lattey, G. C. Jones, C. W. Fellows, O. L. Richards, M. A. Murtagh, E. D. Wynn, G. Robson, S. Duckitt, S. G. Hall, H. J. Willis, W. M. Morris, S. L. Hulme, R. D. Bednell, W. Swann, R. C. Baxter. *Passengers.*—11.

On Monday Mr. M. A. Murtagh made his first solo flight.

On Thursday Flt. Lt. Rose flew XT to Halton for the Gymkhana.

The Club will be closed from Thursday, Aug. 2, till Tuesday, Aug. 7.

Mr. Clarke on a D.H.51 and Mr. Cameron on an Avro paid us a visit on Saturday.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, Hamble Aerodrome, Southampton.]

Report for week ending July 27.

Flying Time 60 hr. *Instruction* 36 hr. *"A" Pilots* 6 hr. 10 min. *Soloists* 7 hr. 45 min. *Passengers Flights* 8 hr. 55 min. *Tests* 1 hr. 10 min. *Instruction.—With Flt. Lt. Swoffer and Mr. W. H. Dudley*—Sq. Ldr. Bradyll Johnson, Messrs. Sturge, Farmer, Neave, Miss Melvill, Messrs. Beagley, Buckley, Cambell, Redwood, Clifford, P. L. B. Wills, Powell, Craske, Southcliffe, Lt. Dallmeyer, Flt. Lt. D'Aeth, Sq. Ldr. Colls, Mr. Goldman, Cdr. Bell, Messrs. Phillimore, Dalrymple Smith, Donner, Evershed, Matlock, Rumble, Richardson, Dr. Russell, Messrs. Brodrick, Tobutt, O. E. Simmonds, Smith, Baker, Lt. Coode. *"A" Pilots.*—Lt. Fagan, Capt. Kirby, Lt. Heath, Mr. Bowen, Lt. Heinemann, Mr. Baynes, Mr. Parker, Don J. de la Cierva, Messrs. Hayter, Michelmore, Mellor. *Soloists.*—Messrs. Wills, Southey, Wells, Curtis Nuthall, Miss Grace, Mr. Townsend, Mr. King, Flt. Lt. D'Aeth, Mr. Colls, Mr. Whittle. *Passengers.*—Mr. Upham, Miss Bailey, Mr. West; Miss Roake, Messrs. Boxall, Holland, Bennett, Mrs. Gordon Smith, Miss Gordon Smith, Mrs. Holmes, Miss Allen, Mrs. Stugg, Mrs. Hopgood, Mr. Belville.

We were very interested on Sunday when Don J. de la Cierva brought over a party of Spanish gentlemen who are forming a Light Aeroplane Club near Madrid. They each had a joy flight in one of the Club Moths and expressed themselves as being very pleased with their experience.

On Thursday we were visited by Messrs. Bellairs and Miles from the Shoreham Club.

Mr. Lawrence Hope, the winner of the King's Cup Race, also visited us on Thursday and we were pleased to have the opportunity of congratulating him personally.

The Club will be closed from Aug. 4 to 13 inclusive.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending July 29.

Flying Time 21 hr. 5 min. *Instruction.—With Mr. Young*—Messrs. A Richardson, C. Harvey, A. Cooper, A. Kirkby, W. Mills, H. Cator, D. Corsellis, T. Image, A. G. Marshall, C. Land, Mrs. Cator. *Soloists.*—Messrs. C. C. White, E. Lambert, E. Varden Smith, R. Potter, R. Harmer, N. Brett, A. G. Lofty, H Pank, W. A. Ramsay, W. Cubitt, H. Cator, G. Barker, G. Surtees, T. Image. *Passengers.*—27.

Capt. Cator, our Vice-Chairman, has gone solo and he made some splendid landings (great relief). One always watches those first solo landings feeling decidedly perturbed until the machine is very securely on the ground intact. Members heave a big sigh of relief, congratulate the soloist and return to the peaceful oblivion of a deck chair, whence they came.

Mr. A. G. Barrett has been most industrious lately and must have lost a considerable amount of sleep and perhaps patience. He constructed a model of the Westland Wapiti and presented it to the Club, where it now reposes in a place of honour in the dining-room. It's a topping little model and many gadgets have been put on it, including slots. We are most grateful to A. G. B. for this handsome addition to our collection.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. F. G. Crawford, Filton Aerodrome, Bristol.]

Report for week ending July 28.

Flying Time 24 hr. 25 min. *Instruction* 12 hr. 55 min. *Soloists* 50 min. *Soloists.*—Mr. Downes-Shaw, Mr. Jopp, Hon. H. C. H. Bathurst, Capt. Davy, Mr. Tratman, Miss Miles, Hon. B. L. Bathurst. *Instruction.—With Mr. Travers*—Miss Miles, Dr. Farr, Dr. Lysaght, Messrs. Peters, Allinson, B. L. Bathurst, Charlton, Evans, Neale, Chopra, Singh, Lynas, Greenhill, Rogers, Byrnes, Heaven, Newman, Putnam, Laws. *With Mr. Tratman.*—Messrs. Neale, Keeling, Lynas and Greenhill. *Cross-country Flights.*—Mr. Downes-Shaw (Mr. Leaver as passenger) 1 hr., Mr. Travers (Mr. Hall as passenger) 3 hr.

Miss Miles and the Hon. B. L. Bathurst both made successful solo flights during the week. Both of these should take their licences before long. Other members under instruction are also coming on well. The demand for instruction during the week has been heavy. The break in the spell of fine weather has been unfortunate, but in spite of this a fair amount of flying was done.

Cinque Ports Flying Club.

[Sec.: R. Dallas Brett, 114, High Street, Hythe.]

Report for week ending July 21.

Flying Time 6 hr. 25 min. *Test Flights* 15 min. *Journeys* 2 hr. 5 min. *Passengers* 4. *Instruction.—With Mr. Clarke*—Messrs. R. Dallas Brett, Gunner, Packenham, West, Swinnard. *Soloists.*—Mr. R. Dallas Brett, Mr. West.

During this week the machine was exhibited in the Kent County Agricultural Show at Folkestone, where it attracted considerable attention and was instrumental in obtaining several new members and subscribers. Mr. Clarke flew the machine on and off the Polo Ground adjoining the Show.

Report for week ending July 28.

Flying Time 5 hr. *Test Flight* 5 min. *Journey* 1 hr. 10 min. *Instruction.—With Mr. Clarke*—Messrs. Skinner, Crowther, Read, Barton. *Soloists.*—Mr. Wright.

New members continue to sign on and this week all the pupils under instruction are new members who have had no previous experince.

The Folkestone Herald and Kent Evening Echo Cup was given by the newspapers concerned for the fastest time by a private owner unconnected with the Manufacturers of the machine or engine, who made the fastest time in the King's Cup Race between Southampton and Lympne. The result is:—First.—No. 13, Mr. "H. Brooklyn," in his Westland Widgeon, Armstrong Siddeley Genet engine. Time for the 103¼ miles 1 hr. 1 min. 34 secs. Second.—Mr. Norman Jones, in de Havilland Moth, Cirrus engine. Time 1 hr. 1 min. 38 secs. Mr. Norman Jones was at first thought to be the winner, but a close check of the figures by the Royal Aero Club Time-keepers, showed that Mr. "Brooklyn" had won by the narrow margin of 4 secs.

The Nottingham Aero Club.

[Sec.: Cecil R. Sands, Imperial Buildings, Victoria Street, Nottingham.]

Report from July 7 to 27.

Flying Time 73 hr. 15 min. *Instruction* 20 hr. 25 min. *"A" Pilots* 11 hr. 50 min. *Soloists (under instruction)* 30 hr. 20 min. *Passenger Flights* 6 hr. 15 min. *Tests* 4 hr. 25 min. ***Instruction.—*** *With Mr. Martin*—Miss Bostock, Messrs. Chawla, Shipside, Taylor, Hatton, Glenn, Austin, Calladine, Thirlby, Walter, Bennett, Stevenson, and Winn. *"A" Pilots.*—Messrs. Cyril Sands, Blake, Ashworth, Ball, Cox, Hallam, Whitby, Pilgrim, Wilcox and Granger. *Soloists (under instruction).*—Messrs. Bradley, Selvey, Taylor, Hatton and Shipside. *Service Pilot.*—Mr. Spaight. *Passengers.*—Mrs. Hallam, Dr. Mullins, Mrs. and Miss Austin, Miss Lambert, Mrs. Willett, Mrs. Walter, Miss Riddish, Mrs. A. C. Ball, Miss Measham, Miss Standring, Miss Klensch, Messrs. Fanril, C. E. Glenn, Gooding, Moody, Martin, Farrow, Willett, Cullen, Warth, Baxter, Durose, Redfern, and Haynes.

Once again we appear before the public in print after a brief lapse owing to shortage of time, ink and paper. The above report covers quite a busy period, namely, the Blackpool Party and the King's Cup scramble. Mr. Martin, who represented the Club in the last-mentioned event (thanks to Mr. Harold Ashworth, our first private owner, who kindly lent his Avian), had the misfortune to have a serious leak in the petrol tank necessitating frequent landings to refuel between controls. On reaching Southampton the tank had to be changed.

We have to congratulate Messrs. Taylor, Hatton and Shipside on achieving their first solos in excellent style and we trust all beginners will continue to practise continuous landings and figures of eight in their early stages.

Our membership continues to increase steadily and when we get into our new home we can look forward to great happenings. At the moment we have only one machine available as SK is being airworthied, but it should be ready by the time these notes appear. This machine, by the way, has done 400 hours on Club work since October last, being used for dual and solo.

The Winnipeg Flying Club.

[Sec.: F. D. Bradbrooke, 903, Lindsay Buildings, Winnipeg.]

Report for week ending July 8.

A week of intermittent heavy rains kept down flying time for the two Club machines, G-CAKB and G-CAKU, to 24 hr. 43 min. The total flights were 200, so that the Club has to its credit in six weeks' operation 1,550 flights and about 164 flying hours.

Instruction.—With M. de Blicquy—Mrs. Oakes, Miss Bell, Messrs. Barker, Barager, Brookes, Beketof, Crosby, Cook, Furnival, George, Grainger, Gardner, Longley, MacFarlane, MacBean, MacDougall, Nanton, Thomas.

Messrs. Crosby and Barager did successful solos, the former doing his first flight alone and the latter his first solo with the Club after a refresher course. Members who continued solo work were Messrs. Alleyn, Bradbrooke, Barager, Brookes, Crosby, Huggard, Haldane, Partridge and Straith, the total time being 8 hr. 20 min.

Vice-President Phil Crabbe flew with Mrs. M. Campbell, M.P., and the Hon. W. R. Clubb as passengers.

From the air Stevenson Field appears the driest spot for miles but the pools of water make landings somewhat difficult none the less. Students are profiting by the practice in mud-walloping, with no worse effects than copious splashings.

The Cape Town Flying Club.

[Sec.: L. E. Brockman, P.O. Box 2668, Cape Town.]

The Cape Town Flying Club, which was presented with an Avro Avian last August by the Shell Company, has found this machine so satisfactory that it has placed an order with A. V. Roe and Co. Ltd., for a second one, which will be shipped out to Cape Town in a week or two.

The presentation Avian, piloted by Col. W. D. Beatty, Chairman of the Cape Town Flying Club, and a passenger, recently made its first long flight on the occasion of the Flying Club's Meeting there. The outward journey, a distance of about 600 miles, was purposely arranged to occupy two days, and took 9 hours' flying time owing to a head wind at the start. The return journey was done in one day, 7¾ hours' flying time. During the Meeting the machine was used for joy-rides, which were very popular.

The Singapore Flying Club.

[Captain: Capt. R. Johnstone, M.C.]

On April 28 the Singapore Flying Club was officially opened, the ceremony being held at the premises of the Yacht Club. The Club has bought two D.H. Moth seaplanes, and after these had been christened *Cherub* and *Humming Bird*, His Excellency the Governor, Sir Hugh Clifford, made a flight in the *Cherub*. The Club was fortunate in having the services of Flt. Lt. Carnegie as Honorary Instructor, during the time that the Far East Flight was stationed at Singapore.

The Mayfair Flying Club.

An advertisement in *The Times* states that the Mayfair Flying Club wishes it known that there is absolutely no connection between the Club and the Henderson Flying School of Brooklands other than the arrangement whereby the latter undertake to train members of the Club with machines and aerodrome owned by the Henderson Flying School.

To those closely associated with the aero-club movement the name of the Mayfair Flying Club is probably unfamiliar. At any rate the staff of THE AEROPLANE heard of it for the first time only a few days ago. And the manner of the hearing was thus:—

A reader of THE AEROPLANE apparently saw an advertisement of the Mayfair Flying Club in some other paper and wrote asking for information as to the entrance fee, the location of the Club's aerodrome, the types of machines and engines used, the amount of dual and solo tuition given per day, and whether he could start immediately and continue until through for his B licence.

The reply which he received a few days later stated that there was no entrance fee to the Club but that the annual subscription was ten guineas, which entitled the member of the Club to flying tuition at £4 per hour, which, the letter stated, "is 50 per cent. lower than many other leading clubs." The letter also stated that the Club's aerodrome was at West Weybridge, that the machines were of Avro type, that for dual tuition the member could have two hours a day and for solo flying he could take a machine up for as long as he liked. The letter further told him that he could start at once and go on day by day until through, and it added that the Club was turning out pilots at the rate of one a day.

The enquirer writes to point out that the Mayfair Club charge ten guineas per annum, which is certainly not 50 per cent. lower than any, let alone many, of the leading clubs. Most clubs charge between three and five guineas per annum. The pupil-members of the Club when enrolled are, he says, sent to the Henderson Flying School at Brooklands and pay exactly the same price as if they joined the Henderson School direct without paying any ten guineas per annum for joining the Club. At Brooklands there are no machines nor instructors belonging to the Club itself and even the highly efficient Henderson School cannot give each pupil more than one hour dual instruction per day instead of the two hours promised by the Mayfair Club,—and for the matter of that one hour of dual instruction a day is quite enough for any ordinary pupil if he is to absorb what he has been taught.

The statement that the Mayfair Club is turning out pilots at the rate of one per day is obviously an exaggeration, for such a rate of production is greater than that of any club or school in this country.

So far as the investigator could gather, what the Club actually offers for the ten guineas subscription is "social and dance facilities." Whether what is offered is worth the money is a matter for the individual to decide. But one cannot find that there is anything to recommend the affair as a Flying Club.

FLYING SCHOOLS.

The De Havilland School.

Report for week ending July 22.

Flying Time 261 hr. 10 min. *Instruction.—Dual*—105 hr. 15 min. *Solo*—107 hr. 5 min. *Other Flying* 48 hr. 50 min.

We have put in another excellent flying week, on the school, and as our pupils still increase in numbers we have secured the services of yet another instructor.

On Monday five of our advanced pupils took five D.H.9s in very excellent formation to Coventry and Bristol Schools. The sight of five civil machines flying in formation was pretty to watch, and was an extremely brilliant achievement in the fact that the pilots had never before attempted formation together.

Five pupils carried out excellent first solos, and one pupil passed his night-flying test for "B" Licence.

The Hon. D. F. Tennant and Sir Pyers Mostyn passed their "A" licence tests.

Ten new Moths were tested, and despatched, thus keeping our delivery programme up to scratch.

It is with sincere regret that we learn of the tragic death of Mr. G. N. Warwick, an old member of our School, and a well-known figure at Stag Lane.

The Henderson Flying School.

[Managing Director: Lt.-Col. G. L. P. Henderson, Brooklands Aerodrome, Byfleet.]

Report for week ending July 19

Flying Time 47 hr. 45 min. *Instruction.—With Col. G. L. P. Henderson*—Messrs. Du Cane, Bennett, Guiness, Stewart. *With Mr. H. D. Davis*—Messrs. Davies, Preston, Oldmeadow, Hamilton, Daniels, Kerr, Forthergill, Murphy, Stewart, Swan, Knight, Norbury, Groner, Oliver, Stoop, Chapman, Dr. Taylor, Misses Wellby, Mrs. Scott. *With Mr. W. F. Davenport.*—Miss Wellby, Dr. Taylor, Messrs. Murphy, Davies, Swan, Miller, Stewart, Preston, Hill. *Soloists.*—Messrs. Oliver, Hamilton, Swan, Hill, Allen.

Mr. Du Cane carried out his solo quite successfully.

We have pleasure in welcoming the well-known Lady Motorist—Mrs. Scott—to our School, who shows signs of becoming an expert pilot. Many other pupils have enrolled during the past fortnight and the School is now a hive of industry from morning till night.

Report for week ending July 26.

Flying Time 43 hr. 30 min. *Instruction.—With Col. G. L. P. Henderson*—Messrs. Moursi, Guiness, Murrier, Eastern, Du Cane, Daniels, Miss Chapman. *With Mr. H. D. Davis*—Mrs. Scott, Miss Chapman, Messrs. Richardson, Daniels, Stewart, Oldmeadow, Matos, Preston, Elton, Hill, Bennett, Hamilton, Dr. Taylor, Miss Wellby, Mrs. Monkton. *Soloists.*—Messrs. Anderson, Hill, Swan, Du Cane, Hamilton.

Mr. Du Cane and Mr. Swan have now passed all their tests.

Dr. Wall's Anzani Avro has proved a very successful machine and its average climb in teaching pupils to turn is round about 7,000 ft. in 30 minutes. The machine is exceptionally light to control.

Three hundred passengers were carried during the week on our joy-riding machines.

World's Light Aeroplane Record

On July 25th, Capt. G. de Havilland, flying a

D.H. GIPSY—MOTH

broke (subject to confirmation) the World's Altitude Record for two-seater light aeroplanes, reaching a height of just over 21,000 feet (four miles) in seventy minutes.

The Gipsy engine was, of course, lubricated with——

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 17; Monday, 37; Tuesday, 37; Wednesday, 35; Thursday, 37; Friday, 43; Saturday, 39.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 99, passengers 865, freight 22 tons.

AIR UNION:
Paris—London and return: Machines 57, passengers 353, freight 10 tons.

K.L.M.:
Amsterdam—Rotterdam—London and return: Machines 38, passengers 282, freight 6 tons.

SABENA:
Brussels—London and return: Machines 13, passengers 114, freight 1¼ tons.

DEUTSCHE LUFTHANSA AG.:
Amsterdam—London and return: Machines 24, passengers 62, freight 4 tons.

PRIVATE:
Machines 14, passengers 16.

Total number of trips by British machines 113, carrying 881 passengers. Foreign Machines, 132, carrying 811 passengers.

COMPARATIVE FIGURES.

Week ending July 28.
Machines, 245; Passengers, 1,692; Crews, 469; Total personnel, 2,161.
Corresponding week, 1927:
Machines, 194; Passengers, 1,383; Crews, 357; Total personnel, 1,740.
Corresponding week, 1926:
Machines, 192; Passengers, 1,220; Crews, 237; Total Personnel, 1,457.
Corresponding week, 1925:
Machines, 169; Passengers, 941; Crews, 242; Total personnel, 1,183.
Corresponding week, 1924:
Machines, 181; Passengers, 930; Crews, 225; Total personnel, 1,155.
Corresponding week, 1923:
Machines, 146; Passengers, 682; Crews, 233; Total personnel, 915.
Corresponding week, 1922:
Machines, 209; Passengers, 734; Crews, 342; Total personnel, 1,076.
Corresponding week, 1921:
Machines, 155; Passengers, 462; Crews, 144; Total personnel, 606.
Corresponding week, 1920:
Machines, 115; Passengers, 240; Crews, 144; Total personnel, 384.

Croydon Notes.

A telegraphic inquiry has just been received by the K.L.M., through an American agency, for a quotation for the charter of a machine to Kabul. Flying does seem to be about the only reasonable way of getting to such out-of-the-way places, and it is a good sign that the kind of people who have occasion to make such journeys are beginning to appreciate the fact.

A curious characteristic of air-line traffic is that there seems to be a quite definite tendency for the maximum of passenger traffic to occur on Thursday. This is more particularly the case with Imperial Airways, though signs of this mid-week peak are to be found on most services. This is quite contrary to the general impression of the relative busy-ness of the air-lines at different periods during the week.

Actually there is always a week-end rush, particularly to Paris. This is an outward rush on Friday and Saturday, and an inward rush on Monday and to some extent on Tuesday. During the rush machines in one direction are full up, those in the other relatively empty.

On Thursday the traffic is nearly equal in both directions and though there is no rush and room to spare in both outward and inward bound machines the total passenger traffic is usually greater than on any other day of the week.

The much-heralded arrival of Lady Heath as a second pilot on one of the K.L.M. machines duly occurred on Friday, and was duly recorded by vast numbers of Press photographers—all of whom secured precisely the same photographs. Their disappointment at the fact that the particular machine had no passengers, and that consequently a photograph of the lady receiving thanks from them was impossible, was pitiable to behold. [A question might well be raised before the International Convention on Air Navigation as to whether women are permitted to pilot passenger machines. The feeling of the last Convention was definitely against such permission. Few passengers would wittingly commit their safety to a woman pilot. And Imperial Airways Ltd. would certainly not allow a woman to handle a machine with passengers. There are definite physical and psychological reasons why women are not fitted for such work.—ED.]

Work on the filling in and levelling of Plough Lane has now been completed to the south of the old buildings and very good job has been made of it. The demolition of th old buildings is not yet complete, but the devastated are now looks as though a determined effort to clear it was i progress.

The Neon beacon has disappeared from its original sit and is nearly erected in the new one, which is at the extrem south end of the line of new buildings.

Air Taxis Ltd. have now an office in the booking hall a Croydon, which looks like being a useful adjunct to the othe amenities of the place. There are frequent inquiries at th various air-line offices for special charters which the ai lines themselves are not able to deal with, and Air Taxi should pick up quite a lot of useful business as a result.

THE CROYDON ACCIDENT.

The adjourned inquest on the four passengers killed i the accident to the Vulcan at Croydon on July 13 was hel at Bandon Hill on July 30.

Evidence was given for Imperial Airways Ltd. that th machine in question had been in service on the previous da and was reported as satisfactory. The engine was change overnight in the ordinary course of routine, and the fligh was a routine test flight.

There was always a considerable demand from member of their staff to go as passengers on these test flights, an so far as possible such requests were satisfied.

Mr. A. G. Tucker, one of the passengers, and a store keeper in the employ of Imperial Airways, said that he ha asked several times for a flight and this was the first, bu not, he hoped, the last, that he had had. On this occasio the machine went up to 600 to 700 ft., then came down ver low, and suddenly nose-dived. He was flung onto the floo but remained conscious and was helped out by the pilot The machine then caught fire.

Mr. John Spafford, the pilot, said that the machine's take off was a little below normal, owing, he thought, to the ho weather and variable wind. The engine was runnin normally at the take-off. The machine was a little slow t climb. At about 700 ft. he pushed the nose down, and notice that the machine began to sink very rapidly. He put on little more engine but this had little effect, and the machin continued to sink. He then put on full engine and th machine began to pick up and maintain height for a minut or two.

He then noticed that his water temperature was 100°C., an that steam was coming out of the engine cowling. Th engine seemed to lose power and the machine to sink again

By this time a normal landing was impossible and his onl chance was to land in some allotments. He eased the con trol forward, and the machine started to descend at 45° an hit the ground at that angle.

He found that his right foot was trapped in the machin and it took him some time to release himself. During thi time there was no fire. The left side of the engine the caught fire. He fell down several times but eventuall reached the cabin door and opened it. He found Tucke conscious, the others were stunned.

In reply to the Coroner Mr. Spafford said that the presenc of the passengers was not necessary for an engine test. H thought the heat was to some extent responsible for th sinking.

In reply to Mr. Paull, representing Imperial Airways, h did not agree that he had made any error of judgment. H agreed that his flying time on the Vulcan was only abo ten hours. He knew that on this type it was necessary t keep the tail well up, but he did not think that on this occa tion the tail was too much down.

Several eyewitnesses agreed that the machine nose-dive from about 50 ft. and burst into flames an appreciable tim after hitting the ground.

The jury returned a verdict of "Accidental Death" i each case, and added a rider that in their opinion Imperia Airways should discontinue the practice of permitting the employees going as passengers on test flights.

Mr. Paull said that the practice should be discontinued.

SOUTH AFRICAN AIRWAYS.

The following letter from Alan Cobham Aviation Ltd. of considerable historical importance:—

Sir,—The failure of "African Airways Ltd.," a compan incorporated in Pretoria on April 24, this year has been free

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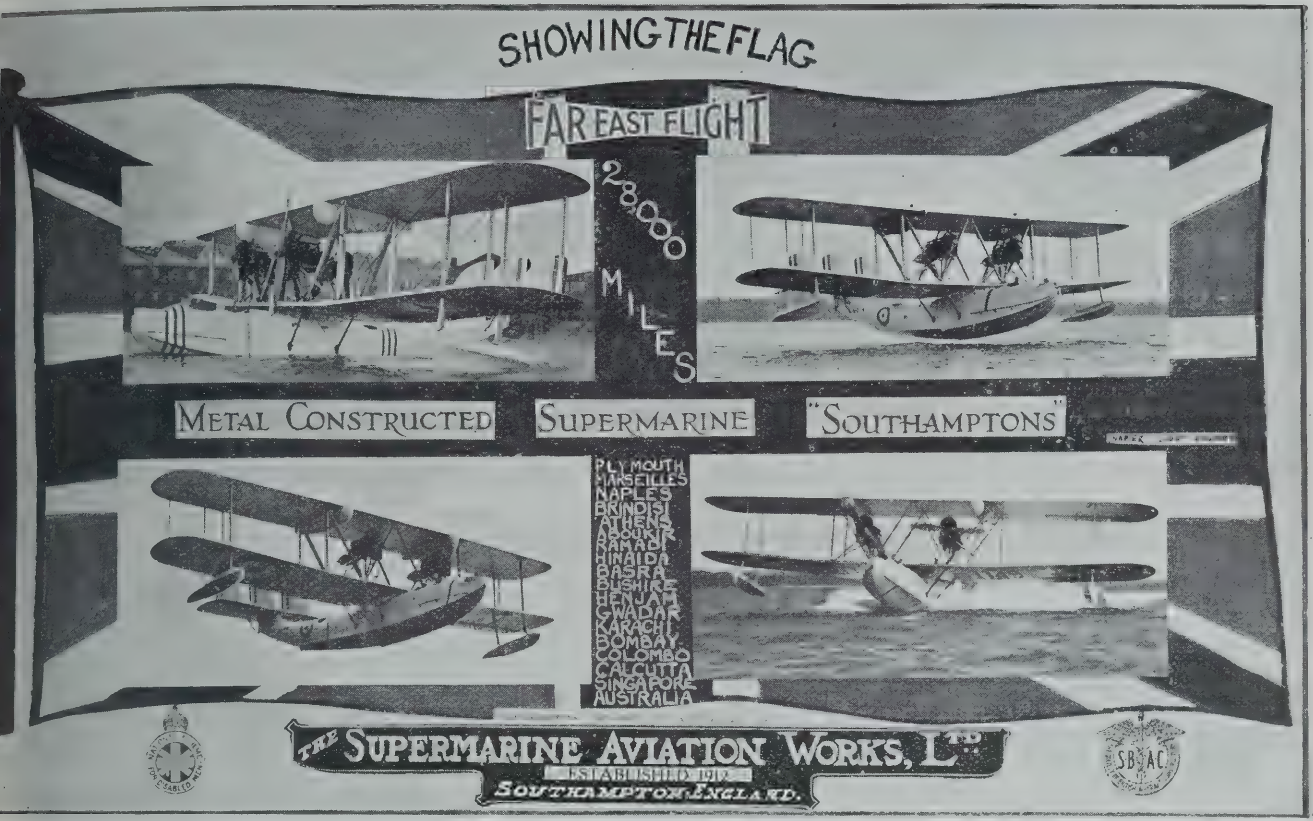

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reported in the press, and there is the suggestion current that our Company is connected in some way with it. We should be glad if you could give publicity to this letter, as it is likely to affect our present negotiations in Africa if we can correct this impression.

Alan Cobham Aviation Ltd. had an opportunity to tender for the proposed service between Durban and Johannesburg at the beginning of last year, but the scheme then submitted was not considered to offer any prospect of success. Sir Alan Cobham was consulted by various officials and Directors of "African Airways Ltd." whilst he was in South Africa at the beginning of this year during his flight round that Continent, but he did not become associated with their scheme.

The interests of our Company in Africa are being handled by "Cobham-Blackburn Air Lines Ltd." which covers also the interests of Mr. Robert Blackburn, Captain Gladstone, and the North Sea Aerial and General Transport Co. Ltd. At the present time "Cobham-Blackburn Air Lines Ltd." is engaged on the preparation of revised estimates for the Colonial Office, in connection with the permanent air service between Alexandria and Mwanza with an extension between Kisumu and South Africa.

(Signed) Charles E. Ward.
Secretary,
Alan Cobham Aviation Ltd.

SPEED IN THE KING'S CUP RACE.

By some error the speed of Mr. R. G. Cazalet's Westland Widgeon G-EBRM, between London and Glasgow, on the first day of the race for the King's Cup was given in The Aeroplane (page 200, July 25) as 70.82 m.p.h. The correct speed was 83.68 m.p.h.

On page 192 of the same issue the order of arrival of all competitors at Glasgow was given. This order does not agree with that shown in the table on page 200. The orders and the times of arrival given on the latter page are correct.

Also, the speed given for the Blackburn Lincock, flown by Sq. Ldr. J. Noakes, on the second day of the race is just 30 m.p.h. too low. It should have been 145 instead of 115 m.p.h.

K.L.Gs. AS USUAL.

As usual, one has to announce that K.L.G. plugs were used by the winners of the chief prizes of the King's Cup Race. Mr. Lawrence Hope used them in his Gipsy Moth in winning the King's Cup. Miss Spooner used them in her Mk.I Moth in winning the Siddeley Trophy, and Flg. Off. J. Summers used them in the Napier Lion in the Avenger, which did fastest time round the course.

Incidentally, there is interest in noting the fact that Capt. Malcolm Campbell, Vernon S. Balls and H. C. Spero, the winners of the prizes in the three classes in the 200 miles motor race at Brooklands on the same day as the King's Cup Race, all used K.L.G. plugs.

MORTGAGES AND CHARGES.

British Flying and Motor Services Ltd.—Particulars filed of £500 debentures authorised June 29, 1928, charged on the company's property, present and future, including uncalled capital, the amount of the present issue being £300.

Harrogate Aerodrome and Land Development Co. Ltd.—Memorandum of deposit dated June 30, 1928, charged on Almsford Bank Estate, Pannal, West Riding, to secure all moneys due or to become due from the company to Lloyds Bank Ltd., not exceeding £2,500.

RECEIVERSHIPS (APPOINTMENT OR RELEASE).

Peter Hooker Ltd. (Old Co.).—Sir Wm. McLintock, K.B.E., C.V.O., of 71, Queen Street, E.C.4, ceased to act as Receiver or Manager on July 6, 1928.

PERSONAL NOTICES.

Marriages.

ASTON—ODOM.—On July 28, at St. Mark's Church, Southam Flg. Off. C. E. Aston, R.A.F., eldest son of Mr. and Mrs. E. of "Ingledene," Thornbury Avenue, Southampton, to Mabel Odom, only daughter of Mr. and Mrs. Frank Odom, of 4, Dubochet Clarens, Montreux, Switzerland.

BARR-SIM—KEMP.—On July 25, at Holy Trinity, Sloane Stree Ldr. A. E. Barr-Sim, R.A.F. Medical Branch, son of the late William Barr-Sim and of Mrs. Barr-Sim, of Sylston, Stonehous Mrs. Kemp, daughter of the late Col. E. B. Snow and of Mrs. Snc 9, Cliveden Place, S.W.

QUAYLE—ROYAL.—On July 21, at St. John's, Redhill, Askwith Quayle, Flg. Off., R.A.F., younger son of Lieut.-Col. Mrs. Edwin Quayle, of Bournemouth, to Beatrice Kate, daughter and Mrs. George Royal, of Rowlands Castle, Hants.

Birth.

ALCHIN.—On July 25, to Sylvia (*née* Wrensted), wife of G Alchin, of the Middle Temple and New House Farm, Hever, a son.

Death.

MORRISON.—On July 21, drowned while bathing in River Flg. Off. John Oswald Morrison, R.A.F., Baghdad, aged 27, fourt of Mr. and Mrs. Morrison, 7, Sciennes Road, Edinburgh.

Mr. Morrison entered the R.A.F. Accountant Branch in August, and was posted to H.Q., 'Iraq Command, in December, 1926.

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AWFUL THOUGHTS.

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Vol. XXXV. No. 6. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

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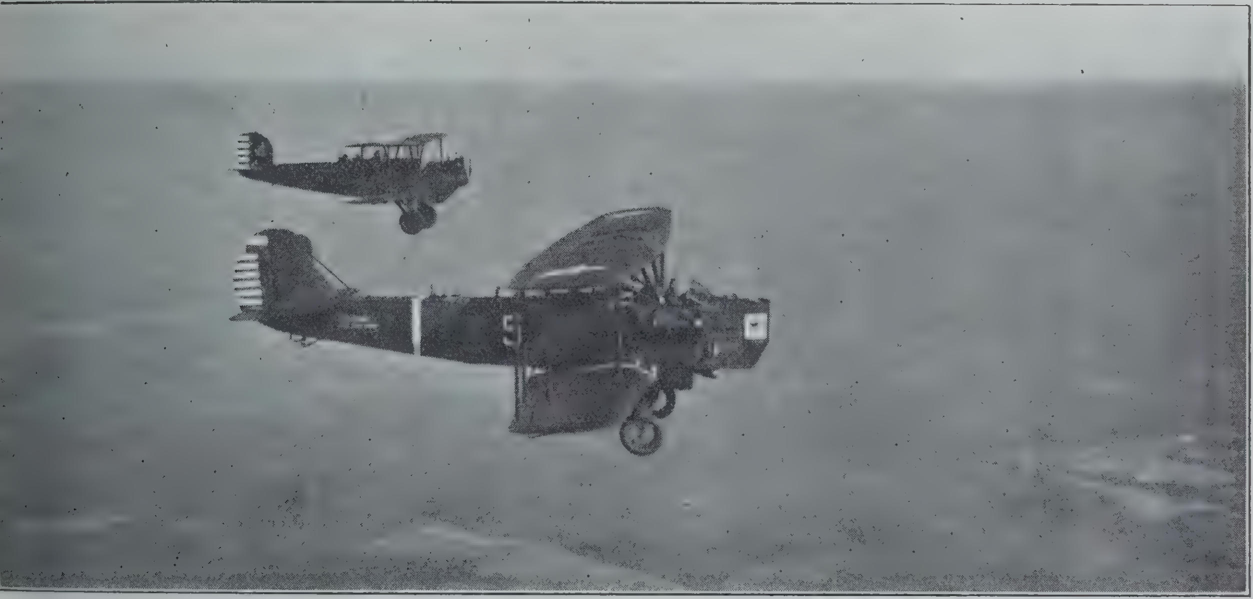

AMERICAN EQUIPMENT:—In the foreground, a Keystone Pirate bomber (two 400 h.p. Liberty engines) and behind, a Douglas O-2 observation biplane (400 h.p. Liberty engine), both standard types in use in the U.S. Air Corps.

(*Official photograph, U.S. Army Air Corps.*)

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AUG. 8, 1928.

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Aeronautical Engineering

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ON SOME AWFUL THOUGHTS.

las it occurred to you that fourteen years ago on Saturday , August 4, War was declared between Great Britain and Central European Powers? Actually the time which passed since then is equal to the time between that date the early part of the Boer War (which one may add for benefit of the very young generation, was in South ica); and that war, even in 1914, seemed fairly ancient tory to the youngsters who plunged into the inter-tribal ip which the newspapers, and even official historians, call the Great War.

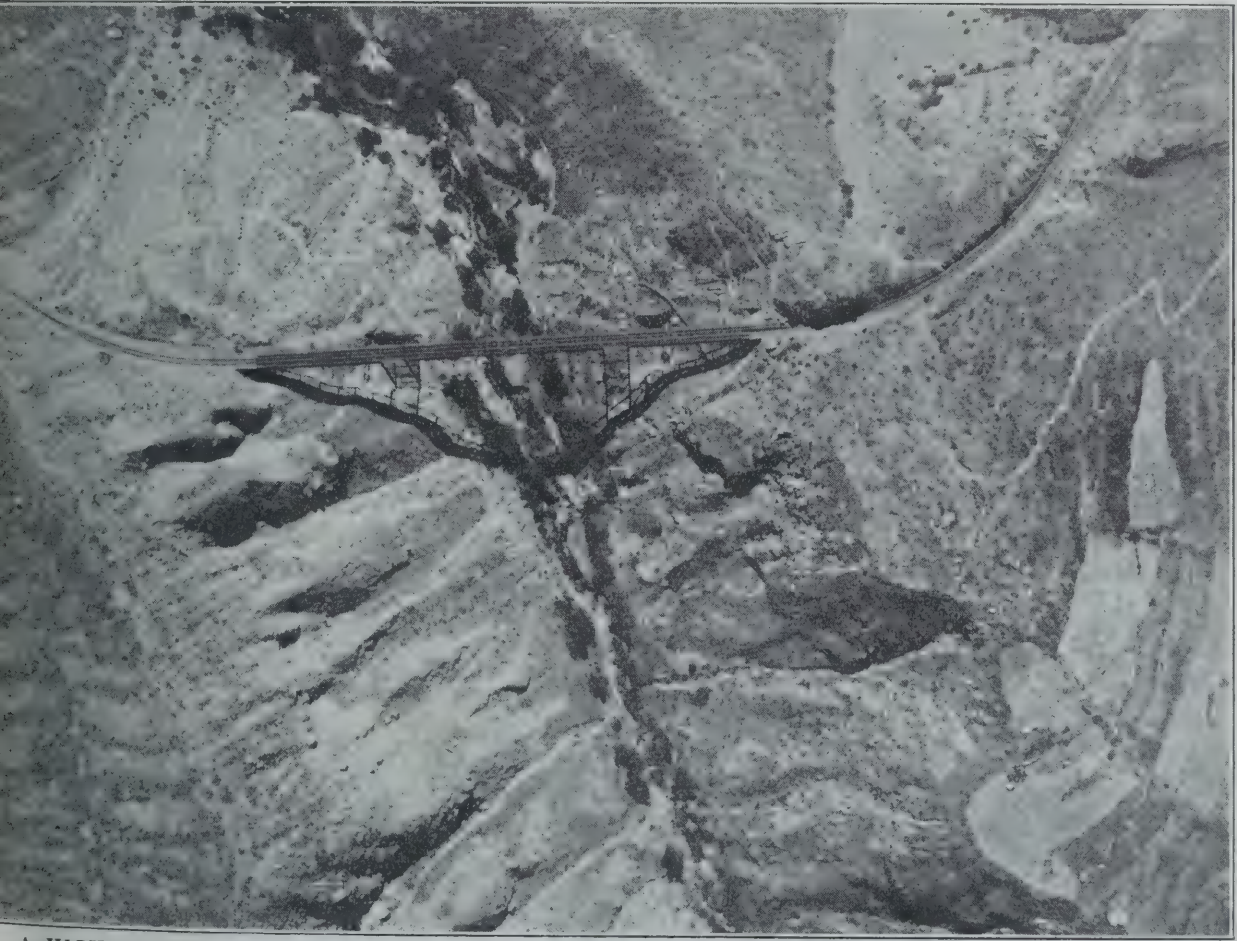
his thought is set down for the special benefit of young ldle-aged people to whom the War 1914-18 still seems a ent happening. They are a trifle apt to forget that there now fathers and mothers of families who were still at paratory schools at the time of the Armistice in 1918, at kindergartens when War began in August, 1914. oody grows old so quickly as the young.

still more awful thought is that the time which has sed since the Armistice in 1918 is just about equal to time which had passed between that Armistice and the y beginning of Aviation,—which may be considered as ing begun in 1908. The question is, Have we improved our aircraft as much in this second ten years as they were improved in those first ten years?

Compare, for example, the early Blériot (which had not yet flown the Channel), and the side-curtain Voisin and the tail-first Wright, and the Curtiss with ailerons between the wings, and the Avro triplane which had a belt-driven airscrew, with the Snipe and Camels and D.H.9s and '9as and Bristol Fighters and S.E.5s of ten years later. And then, consider that those same old Bristols and D.H.9as are still standard equipment in our enlightened Air Force.

Compare the performance of a good D.H.4 (with a Rolls-Royce Eagle) with that of any modern daylight bombers. Compare the performance of a really good S.E.5a or a slightly hotted-up Snipe with that of our modern fighters. Compare the performance of the Handley Page V.1500 (with four Rolls-Royce Eagles) with that of any modern night-bomber, either for speed or load. Leaving out take-off and durability, compare the performance of the F type (Felixstowe) flying-boats of 1918 with that of modern flying-boats, horse power for horse power.

Then consider what all our expert scientists both in the Air Ministry and in the employ of the Aircraft Industry



A HIGH SURVEY.—The famous Verrugas Bridge on the Peruvian Central Railway from Lima to Cerro de Pasco, taken from a Curtiss aeroplane with a Williamson Eagle camera. The height of Verrugas above sea level is about 6,700 feet; the bridge is 600 feet from base to rails; the length is about 1,000 feet. Verrugas is famous for the engineering feat of constructing in South America the World's highest railway and bridge. The fever known as Verrugas occurs in an area about twenty square miles round the bridge and many thousands of men died from its effects during the construction of the railway and bridge.

have done for us in ten years, and what the Royal Aircraft Establishment has done for its £400,000 a year (think of approximately £4,000,000 in the time).

International competition in war put us, between 1909 and 1919, in the position of having the finest aeroplanes and the finest Air Force in the World. We still have the finest Air Force in the World, quite capable of tackling any other air force, except perhaps the Americans, at odds of three or four to one against us. And our aeroplanes are correspondingly well built,—that is what our engineers have done for us. But our scientists have obviously been a complete washout.

But for the late Jacques Schneider and his Trophy, and the work of the Curtiss Company in America, we should not have to-day in this country a machine with a speed of over 200 miles an hour.

Thus it may be seen that international competition in war and international competition in sport are the only incentives which have produced any real progress. Now we are up against international competition in commercial aircraft.

Thanks to some few enterprising manufacturers, who have built machines unhampered by official specifications, we have some very good new types coming along. And the team of higher officials now in charge of technical development are doing their able utmost to encourage progress. So in a few years we may be ahead of our rivals in war machines. But we still have to tackle the market for commercial machines.

Whether or not one's own particular pet war comes off in the next three or four years does not affect the argu that if we do not get out after the commercial aircraft ness we are going to be just as badly left as we were in the Great War by Germany's superiority in fig machines and as we were early in the Great (Lord help us!) by America superiority in machines.—C. G. G.

THE I.A.T.A.

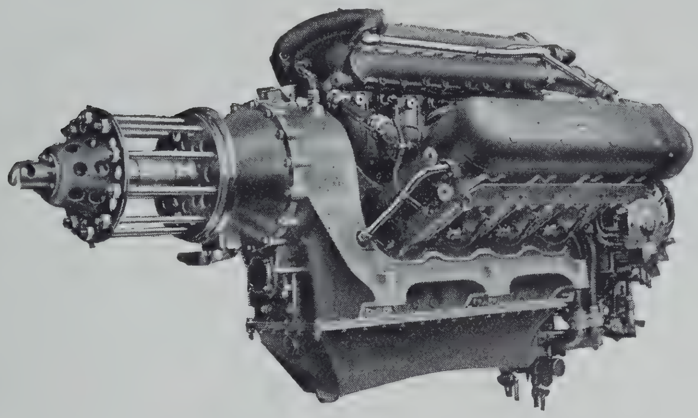
On Aug. 1 the International Air Traffic Association its twentieth meeting. This Association was started in on the initiative of the British air transport firms then existed. The original membership consisted of who were running air lines in Great Britain, Gern Holland, Sweden, Norway and Denmark. To-day tv firms operating air lines belong to that Association.

The meetings this year have been held in the Great Lincoln's Inn. The idea of holding the meetings was suggested by the wife of an eminent London sol who is closely concerned with air transport, and every is due to her for an idea which happily combines the dignity of one of our ancient legal inns with the rush hurry of modern transport. One hopes that the calm o Inn has made the deliberations of the Association more deliberate.

Members of the Association were welcomed by Air Marshal Sir Sefton Brancker on behalf of the Air Min

On Aug. 2 the Members of the Association were tained at lunch in the Great Hall by Imperial Airways

"THE PIRATRY OF FLOOD."— The Victoria Falls photographed from a D.H.9 (Nimbus) of the Aircraft Operating Co. Ltd. while engaged on an air survey of the Zambesi River for the Government of Rhodesia.



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The head resistance has been reduced, facilitating its installation in aircraft.

It has successfully passed the British Air Ministry 100 hour Type test.

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the Chairman being Lord Chetwynd, who has recently joined the Board of that company.

In welcoming the guests Lord Chetwynd said that the I.A.T.A. was bound to make history. Aviation was bound to spread, for there were too many cars on the road and we should in time have aeroplanes flying all over the country. The I.A.T.A. must necessarily work for good. It could present a united front to opposition and the members could co-operate in making progress. Easier communication by air would make nations more amicable. He reminded us that we were in the hall of a Society which possessed records for five hundred years past, and remarked that he would like to know what the records of the I.A.T.A. would be like five hundred years hence.

Major Martin Wronsky, General Manager of the Luft Hansa, which, he recalled, was one of the oldest members of the I.A.T.A., thanked Imperial Airways for its hospitality and friendship and comradeship and for organising this meeting in London. He agreed that Civil Aviation provided important bridges between nations and said that Imperial Airways was one of the most important of these. Also he bore witness to the energy and the virtue with which the work of the firm was conducted.

On Aug. 1 the delegates inspected the new Air Port at Croydon.

On Aug. 3 they were entertained by the Air Council at lunch. Sir Philip Sassoon, who presided, welcomed the members on behalf of the British Government. He said that the importance of the work which the Association was doing had grown steadily year by year, as was shown by the number of companies which had joined the Association and by the number of countries represented on it. He was glad that our present Director of Civil Aviation (at that time with Mr. Holt Thomas' Company, Air Transport and Travel Ltd.) was among those who helped to form this International Association.

Commenting on the programme of the Association he said that the more general the use of air communication became the more essential became uniformity of practice and method in air line work. Lack of uniformity was a hindrance and a handicap and a bar to the increased use of the air by the general public.

He mentioned that the three principal subjects to be discussed by the I.A.T.A. were the method of charging post offices for the carriage of air mails, the responsibility of carriers by air, and the improvement of arrangements between air lines and railways. The solution of these problems would be of direct benefit to the general public. He assured the I.A.T.A. that their deliberations had the good wishes of all who understood what air communications could achieve for the service and betterment of mankind.—C. G. G.

WOMEN PILOTS IN AIR LINERS.

The amount of publicity given in the Press to the fact that a woman pilot recently flew from Amsterdam to Croydon as what is officially known as "second pilot" on one of the K.L.M. machines, together with the statement attributed in the papers to the said woman pilot that her ambition is to fly in one of the Imperial Airways' Argosies, has undoubtedly given the impression to a number of people that women pilots may be employed on international air lines. As such an impression is liable to do damage to the passenger traffic of the air lines, owing to the fact that few passengers would trust themselves in an air-line machine piloted by a woman, the position should be made clear.

Mr. Plesman, the moving spirit of the K.L.M., has told one definitely that the K.L.M. will never employ women
pilots. And there is not even a remote possibility
Imperial Airways, or any serious air-line, will employ wor
Apart from the official attitude of the International Com
tee for Air Navigation, there are definite physical rea
why women are unfitted to pilot air-line machines jus
they are unfitted to be engine drivers or 'bus drivers.

In this particular instance the woman pilot concerned
allowed to fly as second pilot on that particular machin
that particular occasion because there is a possibility
she may take part in a long-distance flight on a sin
machine, which will not be a public service vehicle,
as no passengers were carried in that particular machir
afforded an opportunity for her to have some experienc
flying in the type, though without piloting it. The ph
"second pilot" usually means a mechanic who can
the controls and give the real pilot a rest.

That was a perfectly reasonable arrangement. But
consequent publicity was precisely of the kind which
caused The Aeroplane to appear hostile to women pi
This paper is by no means hostile to women pilots as s
but merely to the way in which publicity of an undesir
kind has been obtained.—C. G. G.

COMPENSATION.

The Chancellor of the Exchequer makes the follo
announcement :—

Lord Inchcape, being desirous that the Elsie Mackay Fun
£500,000 given by him and Lady Inchcape and their family to
nation should not be the occasion or object of any complain
other sufferers from the disaster in which his daughter lost
life, has placed at the disposal of the Chancellor of the Exch
a further sum of £10,000 from his own property to be applied fo
purpose of meeting any complaint in such manner as the Chan
of the Exchequer in his absolute discretion may think fit.
Chancellor of the Exchequer has handed the sum of £10,000 to
Public Trustee for administration accordingly.

[As the only other sufferers would appear to be
Hinchliffe and her children, apparently the money wil
to them at the discretion of Mr. Churchill. Neverth
there is difficulty in understanding why Lord Inch
should not have made an admirable gesture by preser
an adequate sum to Mrs. Hinchliffe, in trust for her chil
without all the publicity consequent on calling the Chanc
of the Exchequer into the deal.—C. G. G.]

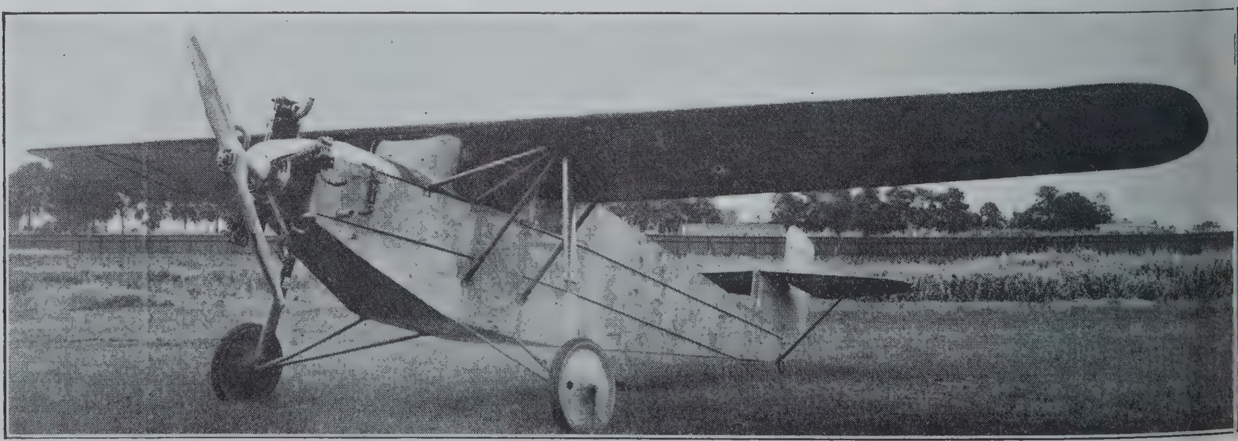
THE AERONAUTICAL CHAMBER OF COMMERCE OF AMERICA.

His many friends in England will be pleased to hear
Mr. Lester Gardner, formerly proprietor and publishe
America's leading aeronautical journal, *Aviation*, and
President of Aeronautical Industries Inc., has been ele
President of the Aeronautical Chamber of Commerc
America.

Mr. Gardner is to be congratulated on this recognitio
his personal qualities by the Aeronautical Chamber of
merce, which includes all his oldest business friends.
the Aeronautical Chamber of Commerce is to be congratul
on securing Mr. Gardner as their President in successio
Colonel Paul Henderson. Seldom does any public body
age to get in succession two such thoroughly good offic
each an outstanding character in his own way. At this
cal period in the progress of aviation in the United S
the Aeronautical Chamber of Commerce is particularly
manned for its task.

THE AFRICAN "ALL RED" FLYING ROU

Following out the suggestions made in the speeche
Viscount Elibank (the chairman), General Seely and
Alan Cobham (guest of honour) at the luncheon held at
British Empire Club on July 26, the Council of the Br



THE KOOLHOVEN F.K.-41.—A three-quarter front view of Mr. Frederick Koolhoven's latest monoplane. It weighs 850 lbs. empty, carries a load of 800 lbs., has a top speed of 90 m.p.h., and a landing speed of 38 m.p.h. It is fitted with a 60 h.p. Siemens engine.

WITH THE ROYAL AIR FORCE.

The extensive adoption of Fairey Aircraft as standard equipment in the air forces of Great Britain and the Colonies, as well as of many foreign countries, forms an indication of the high standard achieved in the production of aircraft by the Fairey Aviation Company.

There are to-day in use with the Royal Air Force, both at home and overseas, five distinct service types of these aircraft, including large quantities of such types as the new "III.F" in both its General Purpose and Fleet Air Arm forms, the "Fox" day bomber, the "Flycatcher" single-seater ships fighter, the "Fawn" day-bomber, and the well-known "III D" sea and landplane.

THE FAIREY AVIATION COMPANY LTD. Head Office & Works: Hayes, Middlesex.

Empire League have made the following recommendations to His Majesty's Government :—

1. That all assistance should be given to Sir Alan Cobham in materialising his scheme for an "all-red" flying route round and through Africa, and that for this purpose His Majesty's Government might well be urged to subsidise this air line.

2. That Franco-Belgian interests are very active in promoting air routes in Africa for strategical and political purposes, quite apart from commercial purposes, and unless early steps are taken to materialise the scheme being promoted by Sir Alan Cobham, Franco-Belgian flying interests will get ahead of British flying interests in Africa, the greater part of which territory is of special concern to Great Britain and the Empire.

3. That the British aircraft industry and the British air lines do not receive the same financial assistance from the British Government as do the aircraft industries and air lines of other foreign nations.

4. That the open subsidies paid by foreign Governments are greater than those paid by the British Government, whilst foreign nations also subsidise indirectly.

5. That His Majesty's Government should vote a sum of from one million to two million pounds per annum for the next five years for the special purpose of assisting British aircraft industry and British air line development.

A CHANGE IN NATIONAL AIR TRANSPORT INC.

As from July 1, Mr. L. D. Seymour, Chief Engineer of National Air Transport Inc., has been promoted to be Assistant General Manager of the company.

Col. Paul Henderson will continue as Vice-President and General Manager of the company, but will not be active in its day-to-day work. Mr. Seymour's headquarters will be in Chicago at the general offices located in the North-East Corner of the Municipal Airport.

Mr. Seymour was born in Wolcott, N.Y., and graduated from Syracuse University with the degree of Electrical Engineer. After graduation he took to public utility work as an engineer and later served as manager of one of the subsidiary companies of the Interstate Electric Corporation of New York.

He remained in this position until the entry of the United States into the war in 1917, when he joined the army and served in France as Aircraft Maintenance Engineer-Officer of the 85th Squadron. After the Armistice, as an Air Service officer, Mr. Seymour did post-graduate work in Aeronautical Engineering at the Ecole Superieure d'Aéronautique in Paris.

Returning to the United States in 1919, Mr. Seymour resigned his commission in the Army and was employed as an aeronautical engineer by the U.S. Army Air Service in Washington, in a consulting capacity.

He joined National Air Transport Inc. in January, 1926, and has served as its Chief Engineer from its beginning. Since the establishment of the Aeronautics Branch of the Department of Commerce, Mr. Seymour has worked closely with that branch in its es lishment and maintenance of Air Way Aids to Navigation.

Mr. Seymour holds a commission as captain in the Air Service serve Corps, and is a member of the Society of Automotive Engine and of the Interfraternity Club of Chicago.

THE BRIGHTON AERODROME.

After almost years of negotiation the scheme for a mo racing track and aerodrome near Brighton looks like beco ing an established institution. A company has now b registered with the name of the National Road Racing Tr and Aerodrome Ltd., with a capital of £175,000, the whole which has been underwritten. This financial operation l to be completed before the Brighton Corporation would c sider the matter seriously. The directors of the Comp are Colonel H. W. Burton, M.P., Chairman, Capt. Malco Campbell, Managing Director, Sir William Kay and the E of Cardington.

The motor track will be 6½ miles long by 50 feet wide w banked corners, hair-pin bends, etc., and a finishing strai of 1¼ miles. There will also be a dirt track, the first in country for cars as well as motor-cycles, approximately mile in circumference.

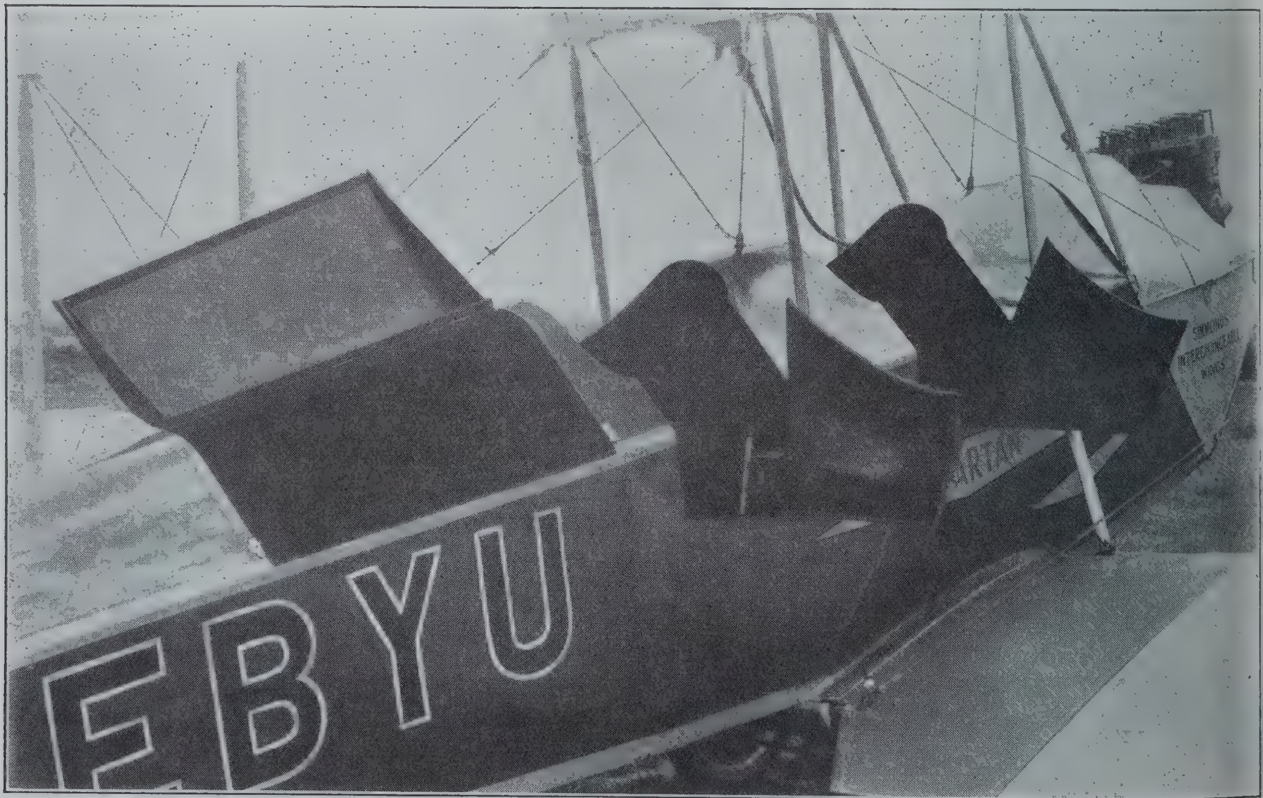
A public issue of shares will be made some time bef September 30 of this year.

In the middle of the motor track there will be an aerodro which, according to plans, should be quite the best-equip in England. Mr. W. J. Hulbert, who made a considera reputation for himself in connection with the Institution Aeronautical Engineers, has been appointed Manager of the firm's aviation activities.

The plan is to have a flying school equipped with li aeroplanes and advanced-training types. There will be a machines available for joy-riding and for hire by qualif pilots. There will be an aero club with restaurant and forth, and sleeping accommodation for pupils will be av able close at hand. Arrangements are being made to est lish a service station for the products of the De Havilla Aircraft Co. Ltd., and A.D.C. Aircraft Ltd.

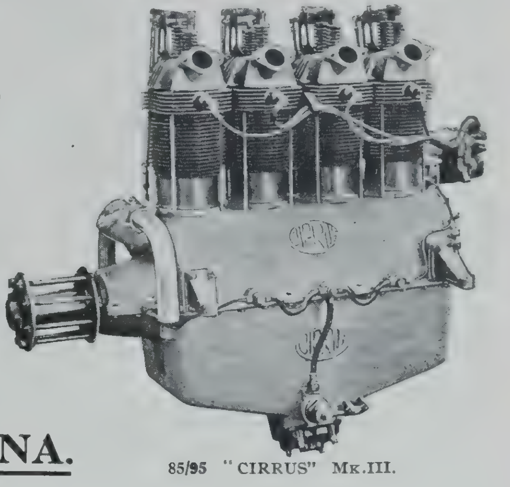
The aerodrome should be an attractive place of call private owners. The distance from London is hardly wo flying and yet anybody who wants to go to Brighton or Sh ham from London will certainly find flying more comf able than motoring or going by rail, as traffic runs at prese Apart from that, the aerodrome will give visitors from North and the Midlands and the West a chance which t have not otherwise of enjoying the South coast seaside. C will be at the aerodrome ready to take visitors into Brigh or elsewhere.

Obviously the whole scheme has great possibilities a one believes that in it Mr. Hulbert's energies will find a ful outlet which will give them full scope.—C. G. G.



SPARTAN SIMPLICITY.—The cockpit doors and locker-lid of the Simmonds Spartan light biplane (Cirrus), showing the simplicity of ingress. The locker is long enough to take guns or golf-clubs.

THE 85/95 h.p. Mk. III "CIRRUS" WINS 1ST PRIZE and CHALLENGE CUP, at



85/95 "CIRRUS" MK.III.

HALTON GYMKHANA.

OPEN HANDICAP AND BUCKS HERALD CHALLENGE CUP.

1ST "CIRRUS-MOTH" fitted with Mk. III "CIRRUS" flown by Cpt. T. N. Stack, A.F.C.
2ND "CIRRUS—MOTH." Pilot, Miss W. E. Spooner.
3RD "CIRRUS—MOTH." „ Miss O'Brien.

OPEN HANDICAP FOR LADY PILOTS.

1ST "CIRRUS—MOTH" (from Scratch). Pilot, Miss Spooner.
2ND "CIRRUS—MOTH." Pilot, Miss O'Brien.

◆

DUTCH INTERNATIONAL MEETING.

AT ROTTERDAM.

FINAL CLASSIFICATION :—

1ST "CIRRUS—MOTH." Pilot, Lady Heath.

SPEED TESTS :—

1ST "CIRRUS—MOTH." Pilot, Lady Heath.

ARRIVAL COMPETITION :—

1ST "CIRRUS—MOTH." Pilot, Cpt. Cordes.
3RD "CIRRUS—MOTH." „ Miss O'Brien.

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THE ROYAL AIR FORCE.

The London Gazette.

July 31.

GENERAL DUTIES BRANCH.—Lt.-Cdr. Andrea Dudley Richard Metaxa, R.N., is granted a temp. comn as a Flg. Off. on attachment for duty with the R.A.F. (July 16).

The undermentioned Plt. Offs. are promoted to the rank of Flg. Off. :—Cyril Charles Douglas Williams (Mar. 24); John Francis Griffiths (with seniority of June 3, 1927) (June 3); Reginald John Drummond Brown (June 11); Malcolm Angus Cowan (July 10); James Douglas Ferrier Bruce and Robert James Pilgrim Morris (July 15). Plt. Off. on probation Alexander Cunninghame Pearson is confirmed in rank (Aug. 1).

Group Capt. James Bevan Bowen, O.B.E., is placed on the half-pay list, scale B (Feb. 6 to 13 inclusive). Lt.-Cdr. Edward John Shirley Knocker, R.N., Flt. Lt., R.A.F., ceases to be attached to the R.A.F. on return to naval duty (July 25). The S.S. comn. of Plt. Off. on probation Oswald Vernon Garratt is terminated on cessation of duty (Aug. 1).

Flg. Off. Frederick Leslie Lawrence is dismissed the Service by sentence of General Court-Martial (July 25).

MEMORANDUM.—Sq. Ldr. Gerald Graham Adeley is granted permission to retain the rank of Major on retirement from the Army (Mar. 24).

RESERVE OF AIR FORCE OFFICERS.—GENERAL DUTIES BRANCH.—J. F Legard is granted a comn. in Class AA (ii) as Plt. Off. on probation (July 17). The undermentioned Flg. Offs. are promoted to the rank of Flt. Lt. (July 31) :—M. D. Barber, H. G. Travers, D.S.C., C. E. M Pickthorn, M.C., A. M. Fitzrandolph, A. J. G. Anderson.

The undermentioned Plt. Offs. on probation are confirmed in rank :—CLASS AA (ii).—A. M. Lester (July 28); T. P. Mulcahy (July 29). SPECIAL RESERVE.—J. A. Hall, W. O'B. Knox, C. E. W. N. C. Pelly (June 1); J. F. R. Hunter (June 6). Flg. Off. G. C. W. Dufty is transferred from Class A to Class C (Dec. 5, 1927). Flt. Lt. C. H. N Nunn is transferred from Class B to Class C (Aug. 1). Flg. Off. C. H. E. Coles relinquishes his comn. on completion of service (June 15).

STORES BRANCH.—The undermentioned are transferred from Class B to Class C (Aug. 1) :—Sq. Ldr. A. Burtenshaw, O.B.E., M.C., Flt. Lt. A. E. M. Dredge, M.B.E.

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—NO. 601 (COUNTY OF LONDON) (BOMBING) SQUADRON.—The undermentioned to be Plt. Off. :—W. E. Windham (June 25).

CHAPLAINS BRANCH.—NO. 605 (COUNTY OF WARWICK) (BOMBING) SQUADRON.—The undermentioned to be Chaplain with the relative rank of Sq. Ldr. :—The Rev. H. N. Forbes, M.A. (June 1).

Appointments.

Week ending Aug. 6.

GENERAL DUTIES BRANCH.—Flight Lieutenants V. Buxton, O.B.E., to R.A.F. Depot, Uxbridge, 11/7 G. S. Hodson, A.F.C., to No. 5 F.T.S., Sealand, 30/7. R. C. Savery, D.F.C., S. Graham, M.C., R. J. Rodwell, J. C. Foden, A.F.C., H. F. V. Battle, C. W. Weedon, D. C. Prance and G. C. Shepherd, to Home Aircraft Depot, Henlow, 7/8. J. W. Turton-Jones, to No. 28 Sqdn., India, 8/7.

Flying Officers K. C. Netherton, to No. 31 Sqdn., India, 4/7. F. Boston, F. C. Rowland, T. H. Perry-Keene, T. N. McEvoy and J. D Greaves, to Home Aircraft Depot, Henlow, 7/8. V. J. Sofiano, to No. 216 Sqdn., Middle East, 17/7. H. G. Wisher, to No. 60 Sqdn., India, 23/6. E. F. Wain, to No. 5 Sqdn., India, 23/6.

Pilot Officer J. R. Mathews, to No. 27 Sqdn., India, 13/6.

MEDICAL BRANCH.—Flying Officer G. W. McAleer, to C. and M. Party, Basrah, 13/7. Flying Officer (Q.M. Medical) F. W. Goodread, to H.Q., 'Iraq, 13/7.

ACCOUNTANT BRANCH.—Pilot Officers M. L. Jones, to E. and W. School, Flowerdown, 25/7. T. C. Reep, to No. 1 School of T.T. (Apprentices), Halton, 25/7. C. V. Mears, to R.A.F. Depot, Uxbridge, 25/7. R. Trippett, to No. 5 F.T.S., Sealand, 25/7.

The Far East Flight.

The four Supermarine Southampton flying-boats (Napi Lion engines) of the Far East Flight, R.A.F., under th command of Group Capt. H. M. Cave-Browne-Cave, D.S.C D.F.C., arrived at Sydney on Aug. 1. They alighted at Far Cove.

Fatal Accidents.

The Air Ministry regrets to announce that as the resu of an accident near Aden to a Fairey III.F machine of No. (Bombing) Squadron, Aden, on July 31 248736 Sjt. Cec Norman Morris, the pilot of the aircraft, was killed and th passenger, 3906145 Lance Cpl. (Acting Sjt.) Gwily Williams, 2nd Battalion, The South Wales Borderers, wa slightly injured.

The Air Ministry regrets to announce that as the resu of an accident at Holbeach Ranges to a Woodcock machi of No. 3 (Fighter) Squadron, Sutton Bridge, on Aug. 2 Fl Lt. Lance Harold Browning, M.C., D.F.C., the pilot and so occupant of the aircraft, was killed.

Extensions of Service.

The undermentioned officers holding short-service co missions have been selected for extension of service on th active list of the R.A.F. during the last three months. Th extensions now notified are in substitution of any exte sion previously granted to any of these officers :—

GENERAL DUTIES BRANCH.—*Selected for extension of Active Li Service to Sept. 1, 1928*: Flg. Off. A. S. Lewis. *Selected for extensi of Active List Service to Oct. 24, 1928*: Flt. Lt. D. E. Ward. *Select for extension of Active List Service to 6 years*: Flt. Lts. A. H. Howlett, J. G. Murray; Flg. Offs. L. Butler, H. J. Gearing, H. Martin.

SUPPLEMENTARY LIST.—*Selected for extension of Active List Servi to 11 years*: Sq. Ldr. G. S. Reed, O.B.E.

ACCOUNTANT BRANCH.—*Selected for extension of Active List Service 6 years*: H. C. F. Ellis.

MEDICAL BRANCH.—*Selected for extension of Active List Service 5 years*: Flt. Lt. H. W. Corner, M.B.

CHAPLAINS BRANCH.—*Selected for extension of Active List Service 7 years*: The Rev. D. F. Stephens, M.A.

The Auxiliary Air Force.

No. 600 (City of London) Squadron and No. 601 (Coun of London) Squadron, the two London Units of the Auxilia Air Force flew to Lympne for their annual training on Aug.

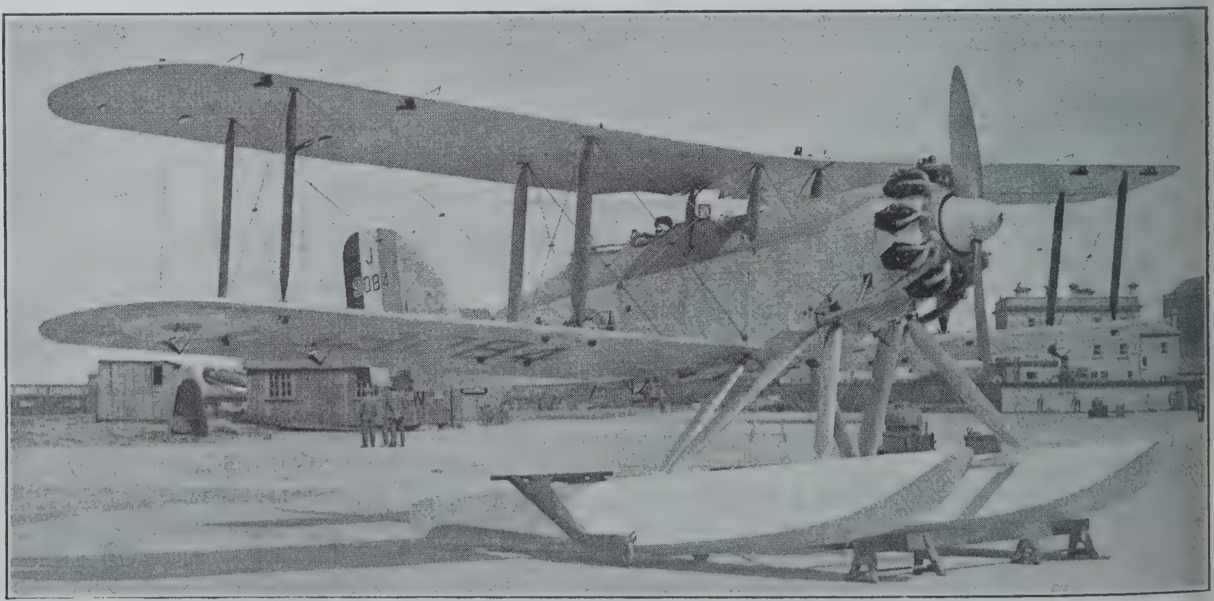
No. 600 Squadron has 17 officers and 75 airmen in ca and No. 601 Squadron has 18 officers and 100 men in camp.

Each Squadron has about 16 aeroplanes with it, includi Avro Lynx Training machines and D.H.9as.

The Air Defence of Australia.

The Times correspondent in Melbourne, Australia, in message dated Aug. 6, states :—

Air Marshal Sir John Salmond, who is visiting Australia at request of the Commonwealth Government in order to advise th on air defence and in the organisation, training, and equipment the Royal Australian Air Force, intends to fly round the count leaving Point Cook on Aug. 16. His flight includes the coastal ar of Queensland, North Australia, and North-Western Australia, wh



THE WESTLAND WAPITI SEAPLANE.—A three-quarter front view of the latest version of the Westland Wapiti (480 h.p. Bristol Jupiter VI engine). It is one of the first float seaplanes to be fitted with the Handley Page automatic slots.

“Bristol”

“Flight” *Photograph.*

Here are some of the Press comments regarding the “Bristol” Single-Seater Fighter shown at the 1928 Paris Aero Exhibition:

“THE AEROPLANE,” July 11th, 1928.

“The real *clou* of the Show, the thing which everybody who was anybody in aviation went to see, was the ‘Bristol’ Single-Seater Fighter . . . Though our old friends the Bristol Aeroplane Company from their earliest days . . . have been noted for the excellence of their workmanship, and though everyone will freely admit that Bristol workmanship is still unsurpassed by anyone else . . . .”

“FLIGHT,” July 5th, 1928.

“‘The Cameo of the Show,’ this was the expression used by a French engineer in reference to the ‘Bristol’ Single-Seater Fighter.”

“ENGINEER,” July 20th, 1928.

“After seeing everything in the Show, the fighting machine exhibited by the Bristol Aeroplane Co., Ltd., with the panelling on one side removed to reveal the construction and equipment, was a revelation.”

“THE TIMES,” June 30th, 1928.

“ . . . A Single-Seater Fighter shown by the Bristol Aeroplane Company . . . very considerably surpasses any other in the Show in performance, ingenuity of design, workmanship and equipment . . . .”

Full particulars on application to :

THE BRISTOL AEROPLANE CO., LTD.,
FILTON — BRISTOL.

Telegrams: “Aviation, Bristol.” *Telephone: 3905 Bristol.*

air defences do not exist except for a few Supermarine Seagulls co-operating with the Navy in charting the Great Barrier Reef. Sir John Salmond will be accompanied by Sq. Ldr. Drummond and Flt. Lt. Ledger.

After flying along the coast to Darwin, Sir John Salmond will return southwards *via* Newcastle Waters and Alice Springs, reaching Adelaide on Sept. 2.

The Halton Passing-out.

The aircraft apprentices who entered No. 1 School of Technical Training (Apprentices) in September, 1925, were inspected on their Passing-Out by Air Vice-Marshal Sir John Higgins, K.C.B., K.B.E., D.S.O., A.F.C., Air Member for Supply and Research, at Halton on July 31.

In his report the Commandant, Air Commodore I. M. Bonham-Carter, C.B., O.B.E., said that of the 494 aircraft apprentices enlisted in the entry now passing out, 40 had been posted to Flowerdown for training as wireless operator mechanics, 20 had been discharged on medical or compassionate grounds, or as unlikely to become efficient airmen; one had died, and nine had been transferred to, and one from, other entries.

The standard of discipline and drill achieved by previous entries had been maintained, but was not yet as high as he could wish.

The technical training had been accomplished with no outstanding difficulties. The apprentices had adapted themselves well to their profession and had shown commendable keenness in volunteering for extra instruction.

In the schools the conduct and industry of the entry had been good. A considerable number of aircraft apprentices who had entered Halton with low places in the entrance examination had made such steady progress that they had passed out high on the list. They deserved the highest congratulations.

The general health of the entry had been good, but time had been lost by aircraft apprentices reporting sick the following morning after getting a minor injury in some game.

The standard of physical training and games had been good.

The results of the final examinations had been as follows: 41 aircraft apprentices had been classified as L.A.C., 196 aircraft apprentices had been classified as A.C.1, 175 aircraft apprentices had been classified as A.C.2, 10 aircraft apprentices had failed, three aircraft apprentices had not been examined.

Cadetships had been offered to No. 366075 Coote, P. B. (Send, nr. Woking, Surrey), No. 366469 Whitehead, J. (Canterbury), No. 366004 Angell, D. V. (Bourn, Cambridgeshire).

Nineteen aircraft apprentices had been retained for the advanced course for corporals.

The following awards had been made by the Air Ministry:

Prizes.—*Grand Aggregate*: No. 366075 AA. Coote, P. B.—Fitter A.E.
Educational Subjects: No. 366065 AA. Clarke, C.—Fitter A.E.
Best Fitter Aero-engine: No. 366427 AA. Smith, C. E.
Best Carpenter Rigger: No. 366043 AA. Bryan, R. B.
Best Fitter Armourer: No. 366155 AA. Parsons, W. C.

After presenting the prizes Air Vice-Marshal Sir John Higgins inspected the workshops, the barracks and the Wing kitchen.

R.A.F. Wireless and the King's Cup.

Those who were responsible for the organisation of the King's Cup Race wish to make known their indebtedness to the R.A.F. Signals Branch for the excellent work done by R.A.F. personnel in working the wireless communications between the various controls and headquarters at Hendon on the first day and at Brooklands on the second. The R.A.F. sent wireless outfits to all the controls except Nottingham and Leeds, and during the two days something like 1,500 messages were put through. The promptness and accuracy of the transmission was very good.

Not only was the wireless work of the highest use in actually running the competition from the point of view of the officials concerned, but it was equally of value to the spectators. Both at Hendon and Brooklands the broadcasting of information to the crowd was well done, and this broadcasting was only made possible by the hard work of the various R.A.F. units at the controls in sending through by wireless the arrivals and the departures of the competitors and information concerning them.

All R.A.F. personnel who worked in these various wireless units can take unto themselves not only the thanks of everybody concerned, but the comfortable feeling that they have done valuable work in promoting the airmindedness of the nation.

A Desert Adventure.

Three aeroplanes of the 39th *Regiment d'Aviation* stationed at Riyak, Syria, which were flying to Baghdad on a courtesy visit to 55 Squadron, R.A.F., met a sandstorm and the pilots of two of the machines mistaking the circular mark used by the 'Iraq Air Surveys Department for the mark of an emergency landing ground, landed and crashed. The third machine proceeded to Baghdad. The two stranded machines were sighted by Yasin Pasha, who was making a motor tour of his lands in the Sumaicha area and he left the desert track to go to their assistance. He found them without food or water and was able to provide for their immediate necessities.

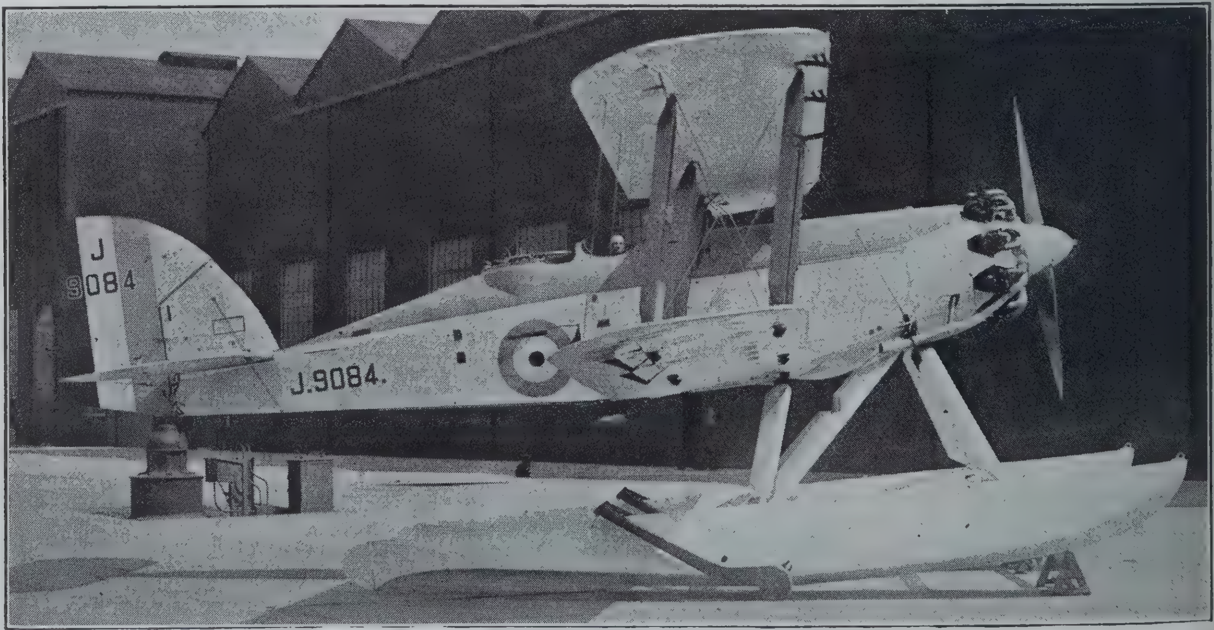
The next morning an R.A.F. troop-carrier found the party and conveyed them safely to Baghdad. The R.A.F. were also able to salve the two French engines but the aeroplanes were so badly damaged that they were burned.

Warsaw—Baghdad.

In the early morning of July 31 a strange aeroplane was seen circling over Baghdad.

It was later learned that the machine was a Polish Fokker monoplane (three Wright Whirlwind engines), which had made a non-stop flight from Warsaw, but the pilot was apparently unwilling to attempt a night landing, in spite o the bright moonlight.

The machine continued to circle round until dawn although the R.A.F. laid out ample landing flares at Hinaidi Aerodrome. When it did attempt to land it struck the *bund*, or flood protection embankment, surrounding the aerodrome and turned over. One member of the crew, Lieut. Czalas, had a fractured skull, and died soon after, but the other two occupants, Lieut. Kalina, and a mechanic, were only slightly injured, and are now in the R.A.F. Hospital a Baghdad.



THE WESTLAND WAPITI SEAPLANE.—A side view of the Wapiti seaplane, which has undergone its trials with considerable success.

New Zealand to train her pilots on Gipsy Moths

EIGHT ordered by NEW ZEALAND Ministry of Defence.

THE Gipsy Moth is the recognised training machine. Due to the power of the Gipsy engine, the use of an intermediate training machine is rendered totally unnecessary. A pupil may pass direct from the Moth to high powered service aircraft. What training machines have done, the Gipsy Moth will do better.

The placing of this important contract followed the success of the Gipsy Moths in the King's Cup Race in which they were placed 1st, 4th, and 6th. A few days later a Gipsy Moth broke the existing world's height record for two-seater light aeroplanes.

The Moth, with new Gipsy engine has no rival. Its absolute reliability under all conditions and its efficient performance justly earn for it the title

"THE BEST LIGHT AEROPLANE IN THE WORLD"

SAFEST
BEST PERFORMANCE
MOST ECONOMICAL
EASIEST TO LEARN TO FLY

MOTH

For full particulars of the Gipsy Moth write :

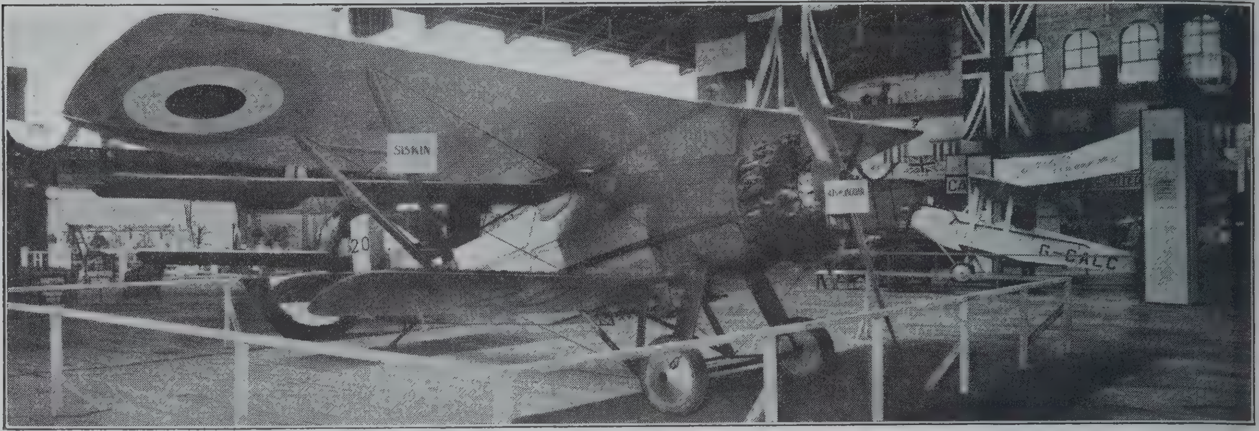
THE DE HAVILLAND AIRCRAFT COMPANY LTD.
Stag Lane Aerodrome, Edgware, Middlesex.
Telegrams : Havilland, Phone, Colindale. Telephone : Colindale 6160-6163

THE DE HAVILLAND AIRCRAFT PTY. LTD.
Whiteman Street, South Melbourne, Australia.
Telegrams : Moth, Melbourne.

THE DE HAVILLAND AIRCRAFT OF CANADA LTD.
1001 Federal Buildings, 85 Richmond Street West, Toronto 2, Canada.
Telegrams : Moth, Toronto.

Streets

THE MONTREAL AERO SHOW.



ENTERPRISE.—An Armstrong Whitworth Siskin (Jaguar) at the Montreal Show, with a De Havilland Moth (Cirrus) in the right background.

From July 7 to 15 the Montreal Light Aeroplane Club organised the city's first aircraft exhibition in the Craig Street Drill Hall.

The exhibition was opened by Major Gen. J. H. MacBrien, D.S.O., C.M.G., C.B., president of the Aviation League of Canada. Mr. J. A. Wilson, Controller of Civil Aviation, and the Mayor of Montreal were also present at the opening.

Among the exhibitors were Canadian Vickers Ltd., who showed a Vickers Vedette flying-boat and a Vickers-Fairchild F2-C cabin monoplane, both with the 200 h.p. Canadian-Wright Whirlwinds. This company also exhibited a comprehensive and educative array of parts and fittings in various stages of construction.

The De Havilland Aircraft of Canada Ltd. exhibited a D.H. Moth.

Sir W. G. Armstrong-Whitworth Aircraft Ltd. exhibited a Siskin III (Jaguar engine), one of a number recently supplied to the Royal Canadian Air Force.

The Ottawa Branch of Armstrong Siddeley Motors Ltd. showed a Jaguar, a Lynx and a Genet air-cooled radial engine. All these types are standard in the Royal Canadian Air Force, and they are now being built in Canada by arrangement with the Ottawa Car Mfg. Co. Ltd., now associated with Armstrong Siddeley Motors, Ltd.

Canadian Wright Ltd. of Montreal showed a Canadian-assembled Wright Whirlwind engine, together with an electrically-driven sectioned engine and various instruments and spare parts.

The Continental Aero Corporation of Montreal showed a Travel Air biplane fitted with a 90 h.p. Curtiss OX-5 engine. This corporation is the Eastern Canadian representative for the Travel Air Manufacturing Co., the Driggs Aircraft Corporation, and Mono-Aircraft, Inc., all of the U.S.A.

The Montreal Light Aeroplane Club during the exhibition christened their two D.H. Moths "Bill Lighthall" and "Ted Peacock," in honour of two members of the cl who have been responsible for so much of the work forming Light Aeroplane Clubs throughout Canada.

AVIATION IN BRITISH COLUMBIA.

A note from Vancouver states that the Aero Club British Columbia has at last managed to get the city Vancouver to take some steps towards locating a municip landing field. The Club hopes within the next few wee to be able to get its promised Club Moths from Ottawa.

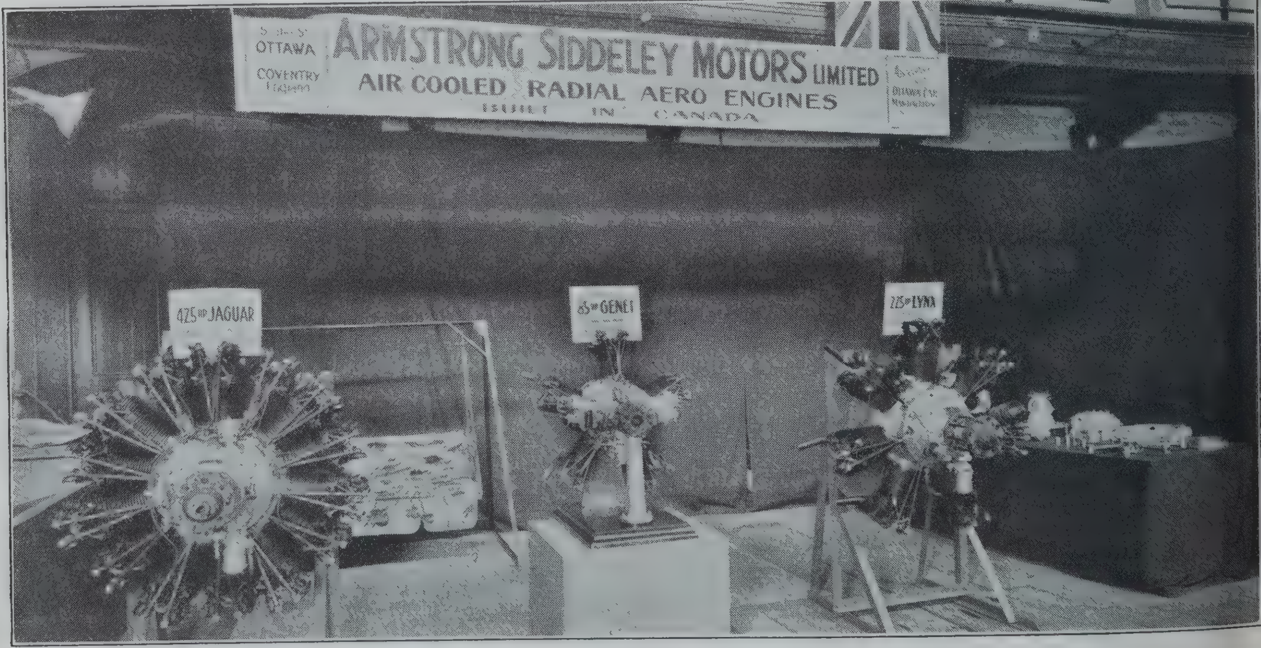
As recorded in THE AEROPLANE recently, Western Cana Airways have taken over Pacific Airways. The latter fir was run by Sq. Ldr. D. R. MacLaren, D.S.O., M.C., D.F. Western Canada Airways are already equipped with Ame can machines, but are buying two Boeing flying-boats addition.

The Jericho Air Station of the Canadian Government h acquired two Fairchild monoplanes with Pratt and Whitn Wasp engines. These are to be used for high-altitude phot graphic work. They were bought because there was British aeroplane of similar type, or at anything like t same price.

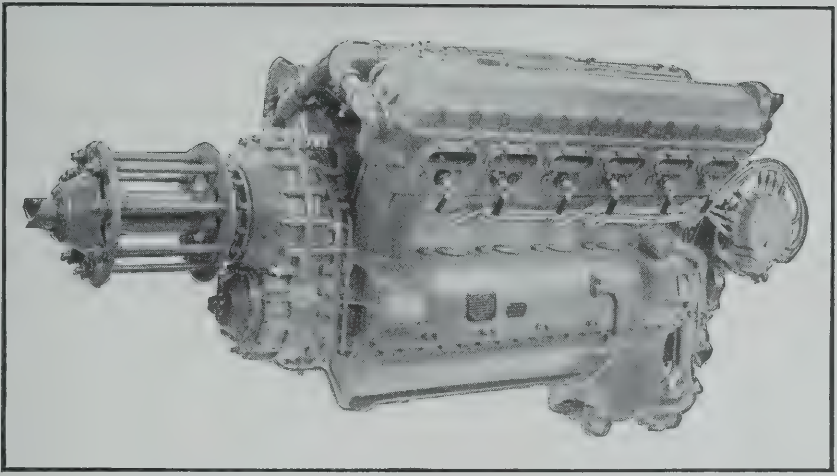
Against these various American orders, one is pleased record the fact that Dominion Airways has ordered a ne Moth.

A BRITISH CAMERA SUCCESS.

In the face of international competition the Williams Manufacturing Co. Ltd. has secured a contract from t Argentine Naval Commission for "Eagle" Aircraft Camer and dark-room equipment, including their latest productio the Williamson Autofocussing Enlarger. The Cameras w be used in the Fairey III.Fs and Supermarine Southampto which have just been ordered for the Argentine Navy.



HOME PRODUCTS.—Armstrong Siddeley engines, built in Canada, at the Montreal Show.



ROLLS-ROYCE
AERO ENGINES

*

The new Rolls-Royce 'F' aero engine, designed by Mr F. Henry Royce, has successfully passed the British Air Ministry's 100-hour test at the first attempt. This noteworthy achievement is a further tribute to the reliability of Rolls-Royce aero engines for which, since their inception, they have always been renowned.
Full particulars on application.

*

ROLLS-ROYCE LIMITED
14-15 Conduit Street
London
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MR. COURTNEY'S MISADVENTURE.

On Aug. 1 Mr. Frank Courtney, who had arrived at Horta in the Azores from Lisbon on June 28, left at 18.55 hours, Greenwich Mean Time, to fly to Newfoundland. At 20.27 hours wireless messages from Mr. Courtney's machine were received by ships in mid-Atlantic saying that he had been forced to alight. The *Franconia* transmitted to England the information that the steamships *Minnewaska* and *President Hayes* were going to his help. Later the *Celtic*, the *Cedric*, the *Thuringia* and the *Colombus* diverted from their courses to go to the rescue of Mr. Courtney's machine.

When the machine came down its position was reported as Lat. 42N. Long. 41W. It was found at 18.00 hours on Aug. 3 by the *Minnewaska* at Lat. 42° 27 min., Long. 39° 5 min. Thus the boat must have drifted considerably from its original position, or else the observations were wrong. Apparently the cause of descent was a fire which broke out in the aft engine-housing and compelled Mr. Courtney to come down more or less in the dark.

The crew of the flying-boat arrived in New York on board the *Minnewaska* on Aug. 6. Mr. Courtney reported that he and his companions owed their lives to their Marconi wireless outfit.

Mr. Courtney's efforts to fly the Atlantic have been singularly unfortunate. But every credit must be given to him for having done everything that human foresight could do to make them successful. He was unable to get a British flying-boat for the job, so he was compelled to take a Dornier Wal, as being the next best thing availabe. And he installed a Marconi wireless outfit. Also, he used Napier engines, so that he could not have done better as regards his power plant. The log of the Southampton flying-boats on their voyage to Singapore shows how extraordinarily reliable these engines are, but also shows how dependent they are on installations and auxiliary fittings which are altogether outside the control of the makers of the engine.

After his unsuccessful attempt last year Mr. Courtney left the Dornier Works at Pisa this year on June 13 at 04.00 hours and reached Lisbon at 17.40 hours the same day,—a very good flight. The machine was overhauled there, and on June 27 he left for the Azores, but after a short flight came back with a leaking radiator. This was repaired, and he reached Horta on June 28, as mentioned hereinbefore.

The crew of the boat consisted, besides Mr. Courtney, of Mr. F. Pierce (engineer), Mr. H. Gilmour (wireless operator), and Mr. E. B. Hosmer, a Canadian millionaire, who has paid all the cost of both attempts. Mr. Hosmer is worthy of note, because he is a very rich man who is devoting himself and his money to aviation. He inherited his wealth, but, unlike most sons of rich men, he has not spent it but has rather increased it. Therefore the fact that he should himself take part in this flight is out of the ordinary. One could only wish that he had spent his money and Mr. Courtney's time on something more useful than trying to fly the Atlantic.

There is at any rate the excuse for this attempt that it has been made on an aircraft of a type which is a little nearer the kind of machine which will ultimately be used for Atlantic flying than have been any of the other machines on which successful or unsuccessful attempts have been made hitherto. At the same time it is so far away from what must obviously be the next step towards trans-Atlantic aircraft that the attempt was hardly worth making. Nevertheless, as Mr. Hosmer obviously wanted to spend his money on flying the Atlantic he was better advised to pr himself in the hands of Mr. Courtney than in the hands o some other sort of aviator who would have been willing t take a long chance on a single-engined land machine.

As Frank Courtney happens to be one of the oldest an best of one's friends in aviation one may perhaps be ac quitted of prejudice when one says emphatically that tran Atlantic steamships, with their big loads of passengers an valuable cargoes—time being the essence of the tran Atlantic contract—should not be diverted for hundreds o miles from their course to look for aviators who are chancin their luck with their eyes open on a gamble in which th odds are very heavily against them.

In spite of that expression of opinion, one congratulate Frank Courtney on having made a very gallant attempt, an one also congratulates Mrs. Courtney on not having lost he husband.—C. G. G.

A POLISH ATLANTIC ATTEMPT.

At 05.44 hours on Aug. 3 Majors Idzikowski and Kubala of the Polish Air Force, left Le Bourget on an Amiot b plane (650 h.p. Lorraine-Dietrich engine) in an attempt t fly from Paris to New York by way of the Azores and Nov Scotia.

They were apparently forced to turn back shortly befor dawn on Aug. 4 by a faulty petrol feed, and later in th day they were picked up by the German steamer *Samos* o Cape Finisterre, after flying for 31 hours.

The German steamer had considerable difficulty in makin the rescue, but the two Polish officers were taken on boar unhurt, and the wreckage of the machine was taken in to to Leixoes, near Oporto.

The machine was the property of the Polish Army, an of the two pilots one was during the War 1914-18 in th Austrian Air Service and the other in the Russian A Service. According to the Paris correspondent of *The Time* who is remarkably reliable in aeronautical matters, thes two were chosen by the Polish War Office a year ago, an were given a special course of training of several months t fit them for the job.

BREST—NEW YORK.

At 17.00 hrs. on July 22 *Lieut. de Vaisseau* Paris, accon panied by a mechanic and a wireless operator, left Brest i a C.A.M.S. 54G.R. flying-boat (two 501 h.p. Hispano-Suiz engines) in an attempt to fly to New York by way of th Azores and Newfoundland.

On July 23 he arrived at Horta at 07.20 hrs. (G.M.T.).

THE FLIGHT TOWARDS THE CAPE.

On July 31 Lieut. Murdoch, S.A.A.F., who is attemptin to fly to Cape Town on an Avro Avian (A.D.C. Cirrus engine left Marseilles and arrived at Catania at 17.35 hours. H left again at 21.35 hours for Malta and Benghazi.

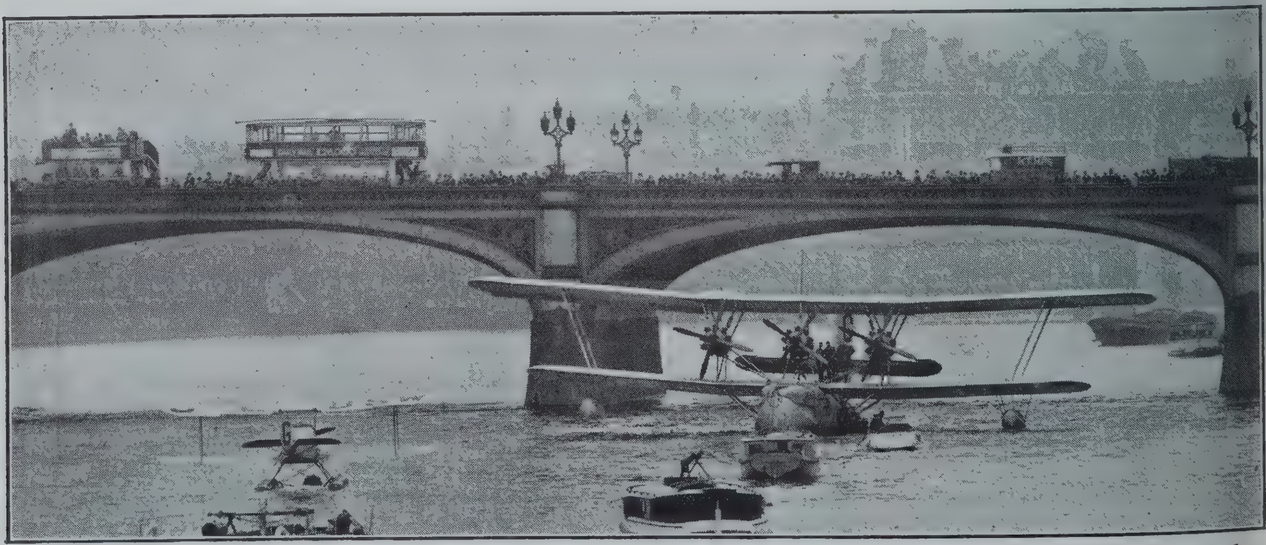
On Aug. 2 he left Benghazi at 06.00 hrs., and landed a Helwan, at 17.00 hours and arrived at Heliopolis at 18.0 hours.

On Aug. 3 he left Heliopolis at 05.00 hours and reache Wadi Halfa at midday.

On Aug. 4 he flew from Wadi Halfa to Khartum.

On Aug. 5 he left Khartum in the afternoon and arrive at Mongalla at 14.40 hrs. on the following day. He has th flown from Croydon to Mongalla in a week.

[Which shows what could be done by a properly organise air line.—ED.]



THE BIG AND LITTLE OF IT.—The Short Calcutta (Jupiters) and the Blackburn Bluebird (Genet) moored in the Thames off the Terrace of the House of Commons. Public interest is shown by the crowd on Westminster Bridge.

Blackburn
AIRCRAFT

THE BLACKBURN "RIPON" TORPEDOPLANE-COASTAL DEFENCE BOMBER AND RECONNAISSANCE MACHINE

"The 'Ripon' dropped its torpedo (weighing nearly one ton)....... zoomed up into the sky, made a perfect loop of remarkably small size, and then proceeded to give a demonstration of slow flying and of control in an obviously stalled condition, which............ looked in no way inferior to any similar exhibition made with the assistance of slots. ...... the "Ripon", stalled and sinking rapidly, was both rolled and yawed through large angles and in a way that showed quite conclusively that ailerons and rudder were definitely effective below stalling speed."

"The Aeroplane", May 23, 1928.

LONDON OFFICE: AMBERLEY HOUSE, NORFOLK ST,
STRAND, W.C.2. 'Phone: CENTRAL 7522.

THE BLACKBURN AEROPLANE & MOTOR Co. LTD
OLYMPIA, LEEDS, ENGLAND. GRAMS: "PROPELLERS, LEEDS."

B. 49.

ORDNANCE SURVEY REVISION BY AERIAL PHOTOGRAPHY.

Report on the Experimental Revision of the 1/2500 Ordnance Survey Plans with the Aid of Photographs taken from the Air. The Ordnance Survey. 62-1017. Published by H.M. Stationery Office. Price 4d. net.

A report has just been published by H.M. Stationery Office on the experimental revision of the Ordnance Survey for an area near Eastbourne which was made by the aid of aerial photographs taken by the Aircraft Operating Co. Ltd.

The main objects of this experiment were to determine :—

(1) Whether improvements and alterations shown on the 25 inch to the mile plans appeared sufficiently clearly on the photographs to enable them to be identified and correctly classified.

(2) To see whether the data given by the photographs are sufficient to enable the positions of all new features to be transferred to the plan with sufficient accuracy.

(3) To discover the amount of revision or examination on the ground after the completion of plotting from the photographs.

The results showed that except in some types of light wire fences all improvements and alterations were easily identified, and that the information given by the photographs could considerably decrease the cost of ground work.

With the means available plotting from the photographs was not possible with quite the required degree of accuracy, but, except perhaps in the case of isolated houses, this difficulty could be overcome by improved plotting instruments. As houses are plotted by the ground line, and the eaves overhang this the ground line cannot always be seen in photographs.

The amount of field work needed for aerial revision was under 50 per cent. of that required by the normal methods, although this included much checking of the photographic data which was required only to give the field workers confidence in the accuracy of the photographs.

With accurate and reliable plotting from the photographs the opinion is expressed that the field work necessary could be reduced by a further one-third.

The general conclusions drawn from this experiment are that aerial photography as a means of revision has already advantages over the present methods both as regards cost and accuracy in towns in flat country, on tidal flats and mudbanks and on foreshores.

The efficiency of aerial survey depends greatly on the apparatus used. The camera used (a Williamson "Eagle") is considered suitable for Ordnance survey purposes, but there is room for much improvement in plotting apparatus. With better plotting apparatus the cost of office work would be greatly reduced, and more accurate results obtained.

Aerial photography has particular advantages of value to the Ordnance. It gives a useful check on the original survey in which there are known to be some small errors. It reduces the invasion of premises necessary by present methods, it is quicker, and should make possible a shorter interval between revision and publication of the revised plans, and finally the small-scale maps can be revised from the same photographs as are needed for revision of the larger-scale plans. With further development of methods the contouring of the six-inch and smaller maps could probably be done from photographs at a small cost.

The report points out that owing to the speed of aerial photography, the Ordnance Survey will never be able to offer a continuous programme of work to a civil photographic firm. The area revised for the 25-inch maps averages 1,670 sq. miles per year, which is less than 100 days' work for one aeroplane.

As a result of the knowledge and experience gained in this experiment it has been decided to revise about 100 sq. miles every year for several years by aerial photography only. When the staff has become experienced, and methods of plotting, etc., standardised, it will be possible to decide whether it will be economical or not to adopt the method as a standard.

The cost of this particular experimental revision was about 45 per cent. greater than that of the normal revision that was made at the same time. With the improvements in methods of plotting and the reduction of field work which are believed to be possible this difference in cost would disappear.

It is interesting to note that the contract price for the aerial photographic work on this experiment was £240, or £5 per sq. mile, out of a total of £973 odd for the whole revision.

THE MECHANISM OF AIR SURVEY.

Apropos the letter by Major H. Hemming, managing director of the Aircraft Operating Co. Ltd., which was published in The Aeroplane of July 25, the writer of the article on "The Mechanical Plotting of Aerial Photographs" replies as follows :—

Major Hemming has read into my article many interpretations which it will not bear. That article was written the information of those not possessing first-hand acquai ance with the practical aspects of air survey, and not teach the British companies engaged in that work th business.

There is nothing in the article which bears out suggestion that I think there is "nothing between mosaic . . . and the machine plot." An intelligent rea of the first half of the article which deals generally with camera as a measurer of angles must realise that there many ways of using this quality as a basis for plotti systems.

I nowhere deride the skill of the pilot. On the contra I expressly state that accurate flying will always be portant in survey work.

The article is not meant to be a general treatise on whole art and science of air survey. It is an attempt give an understandable elementary account of one particu class of plotting machine.

That the machines specifically mentioned are not Brit arises because they are the only ones of which an intellig description has yet been offered to me for public consu tion. If Major Hemming can supply an equally intellig description of the Fourcade instrument I shall be deligh to try and deal with it adequately.

The suggestion that I am entirely unacquainted British research work on aerial survey is completely justified. I am not acquainted with any publishable acco of British experiments bearing on the subject of this articl whose title Major Hemming quotes correctly but see thereafter to have forgotten.

That the use of plotting machines of the type descri is at present not economical is quite definitely stated, quite why an effort to enlighten the general reader o subject of admitted technical importance should rouse Ma Hemming's wrath I find difficult to understand.

A FOREIGN ORDER!—The bow, and one of engines, of an all-metal Supermarine Southampt (Napiers) sold to the Japanese Navy by the Supermari Aviation Works Ltd., of Southampton. In the cock of the machine are seen the Japanese Commissi charged with accepting the machine. Sitting down Mr. Arikawa, and standing from left to right Captain Shozawa, Commander Awaya and Comman Wada, Imperial Japanese Navy.

The efforts of the Société Lorraine ensure steady progress in the value and reliability of Aviation.

Over 5,000 engines are in use all over the World. They are fitted to all types of aircraft, having made themselves indispensable by their regularity of operation. Their use in service has confirmed the brilliant reputation which they have obtained in the number of big flights made during recent years.

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"AUTRES PAYS, MEMES MŒURS."

During the last days of the recent Paris aero show a famous aircraft constructor was holding forth in emphatic tones before a certain light aeroplane there exhibited.

"This machine is a little marvel," he said, "yet there is nothing mysterious about it. The design and the details of construction are all straightforward and follow well-known lines."

"Then why don't you build machines like it?" said one of his hearers.

"I only wish I could," said the constructor. "But with the materials I can use I can't get near to this machine's structure weight."

"But how so?" said the listener. "You can get first-rate timber and three-ply, can't you?"

"I certainly can't get anything to touch the stuff they use on this job. Look at that leading-edge—it's just a sheet of three-ply bent to shape. I defy you or anyone else to make one like it out of our three-ply. And look at the one-millimetre ply-wood on that fuselage. That stuff is as flexible as fabric, but the whole job is strong and light."

"Our three-ply merchants have to use a glue specified, tested and approved by our official technical services, which makes a three-ply so stiff and brittle that you can't possibly use it in the way this stuff is used. We should have to use something much thicker and heavier, merely because our official material specifications are as rigid and inelastic as our three-ply.

"And because we have to use unnecessarily heavy materials in one part of our structure the weight of every other part has to go up to take care of the increased stresses resulting from that unnecessary weight.

"To build cheap light machines you must use suitable materials intelligently, and you can't do that when you are tied to rigid material specifications."

This is not the complaint of a British aircraft constructor. It is a free translation of the alleged remarks of a French constructor (apropos the Klemm Daimler light aeroplane) which were published recently in *Les Ailes.*

NOTES FROM SWEDEN.

Aero Transport A.B. have arranged for a propaganda tour round Sweden of one of their Junkers F.13 machines, in order to stir up public interest in flying.

A tour which should have already produced such an effect has just been completed by a Swedish pilot flying a De Havilland Moth. This tour has covered 4,375 miles in some 60 hours' flying time, and during the whole course the pre-ordained schedule has been kept accurately.

The new flying school near Stockholm opened by the Swedish Aviation Society has trained 22 pilots to the licensed stage in its first seven weeks of operation, and has made a total of 4,000 flights in this period without mishap or damage to either person or machine.

The machines used at this school are De Havilland Moths, and the aerodrome used an ice surface near Stockholm. The ice having thawed, the Moths have been fitted with floats.

The school will move to Gothenburg, and Malmö later, where summer courses are to be given.

THE BUSK STUDENTSHIP.

The trustees of the Busk Studentship in Aeronautics, founded in memory of Edward Teshmaker Busk, who was killed in an aeroplane accident at Farnborough in 1914, have awarded the studentship for the year 1928-29 to Mr. John Joseph Green, B.Sc., of the Royal College of Science.

HARD LUCK.

Capt. Ferrarin and Major del Prete, who recently made a non-stop flight from Rome to Brazil on a Savoia S.64 monoplane, were compelled to land on the beach some 60 miles north of Natal at the conclusion of that flight and slightly damaged their machine.

On July 30, the machine having been repaired, they left for Natal, but in alighting there they unluckily struck a soft patch and the machine overturned.

THE AIR PORT OF JERSEY.

The Secretary of State for Air, with the concurrence of the Jersey Piers and Harbours Committee, has approved as a Customs aerodrome an area of sea of three-quarters of a mile radius, having its centre at Elizabeth Castle, St. Aubins Bay. The necessary licence has been issued.

A GOOD PULL UP FOR MOTHERS.

Those who are Mothing, Avianating, Bluebirding, Widgeoning, Imping, or Spartaning in the neighbourhood of Oxford are asked to note that there is a very good hotel named "The Dog House" adjoining Frilford Golf Course which possesses a large field suitable for the use of light aeroplanes.

Mine host, Mr. Chandler would welcome aviators and would be glad to give particular attention to their needs.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending Aug. 5.

Flying Time 51 hr. 45 min. *Instruction* 21 hr. 10 min. *Solo* hr. 35 min. *Instruction.*—Messrs. G. S. Charles, B. O. Davis, Bonniksen, W. L. M. O'Connor, H. W. Marlow, G. A. Hil H. Sutton, E. R. Andrews, H. R. Presland, H. C. ergel, Blyth, R. F. Adams, J. W. Harrison, E. H. Thierry, J W. Bou A. E. Mines, C. Peckham, Miss Wilson, Miss Hicks, Mrs. B. Th Capt. R. S. Rattray. *Soloists.*—Messrs. E. L. D. Moore, G. Larden, L. Roche Kelly, P. W. Hoare, P. A. Wills, C. Can Will Hay, J. J. Hofer, S. Nesbitt, N. J. Hulbert, B. O. Davis, Hearne, W. L. M. O'Connor, E. S. Brough, E. H. Thierry, Davey, Miss O'Brien.

Flying Return for the month of July, 1928.

Dual Instruction 71 hr. 40 min. *Solo Flying* 97 hr. 45 min *enger Flights* 16 hr. 10 min. *Test Flights* 15 hr. 10 min. *Total Time* 200 hr. 45 min.

Flying Return for the Twelve months ending July 31, 1928.

Dual Instruction 656 hr. 35 min. *Solo Flying* 547 hr. 5 min. *senger Flights* 97 hr. 15 min. *Test Flights* 112 hr. 55 min.

Total number of Flights 3,721. *Total Flying Time* 1,413 hr. 5

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elm

Report for week ending Aug. 4.

Flying Time 32 hr. 10 min. *Instruction* 13 hr. 5 min. *Soloists* 35 min. *Passengers* 30 min. *Instruction.—With Mr. Beck* Ellison, Messrs. Watson, Clayton, J. Blackburn, Ellison, Brodie, Brown, Arundel, Gibson, Clarke, M. B. Lax, Fitton, Gill, Parks. *Soloist.*—Mr. Fitton. *"A" Pilots.*—Messrs. Thomson, C Ellison, Reynolds, Birch, Wood, M. B. Lax, Ambler, A. Cr Norway, Humpheries. *Passengers.*—3

Despite all our hopes we have been unable to get RF's back in time to make this machine serviceable for the h However, we started off cheerfully with two machines yesterd in the late afternoon Fate decreed that one should be taken awa us. Mr. Ellison was coming in to land in the ordinary way away went the bracing cables, result as usual, complete underca airscrew, etc. Our only surprise is that this has not happened for one might just as well be landing on and taking-off gra from our arid aerodrome in its present condition.

This week's funny story.—A letter arrived the other day ad to the Secretary, The Leeds Flying Club, and started off as foll "Dear Sir,—I have got one of your member's birds up in n and have fed and watered her for several days . . . . Ring No. XL 660," etc. (This was duly forwarded to the Pigeon Club.)

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, Hamble Aerodrome, Southampton.]

Report for week ending Aug. 3.

Flying Time 66 hr. 10 min. *Instruction* 37 hr. *"A" Pilots* 35 min. *Soloists* 3 hr. 5 min. *Passenger Flights* 13 hr. 25 min. 2 hr. 5 min. *Instruction.—With Flt. Lt. F. A. Swoffer and Mr.*

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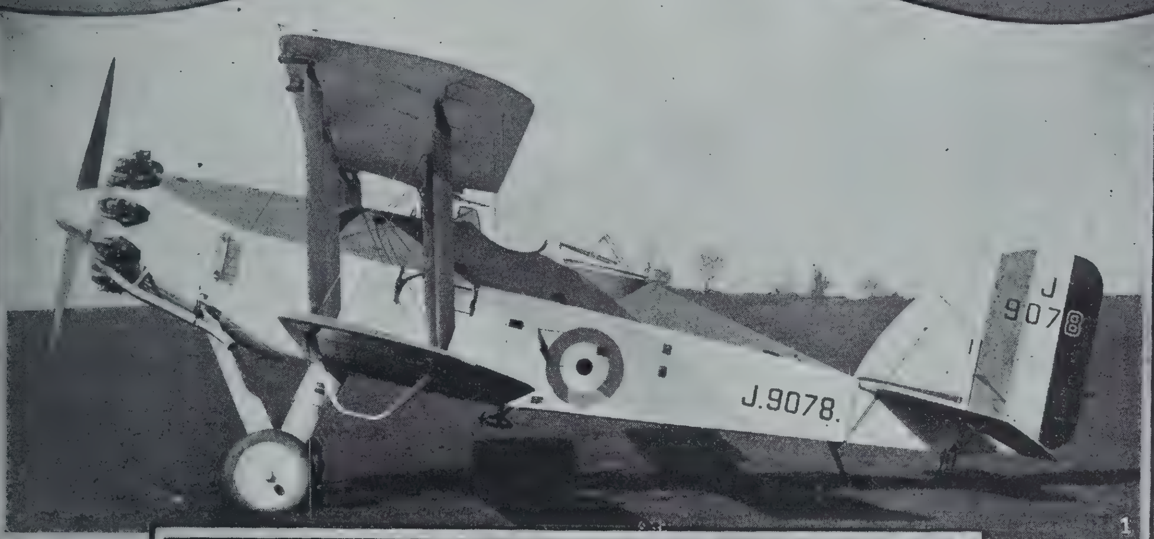

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(Photos 3 & 4.)

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Dudley—Messrs. Coode, Colls, Goldman, Craske, Neave, Buckley, Sturge, Dalrymple-Smith, Hall, Campbell, Mole, A. V. Roe, Clifford, Brodrick, Evershed, Endacott, Mariner, Phillimore, Thorn, Cater, Reuther, W. Martin, T. Martin, Doxatt, Brewster, Agar, Turner, Grahame Gibbs, D. Rumble, Berney, Redwood, Lt. Du Cane, Sq. Ldr. Bradyll-Johnson, Comdr. Bell, Dr. Russell, Miss Grace, Mrs. Crook, Miss Melvill, Capt. Molyneux. *"A" Pilots.*—Messrs. Wills, Heath, Hayter, Fagan, Michelmore, Larden, Wells, Tillard, Parker, H. King, Miss Grace, Flt. Lt. Crawford, Don. J. de la Cierva, Capt. Kirby. *Soloists.*—Messrs. Curtiss, Nuthall, Colls, Sturge, Dalrymple-Smith. *Passengers.*—34.

Our President, Lord Louis Mountbatten, paid a visit to the Club on Aug. 2, and was flown back to his residence by Flt. Lt. Swoffer.

Lady Brecknock, who came over in the morning, returned to lunch by air, the Chief Instructor landing in front of the house.

Mr. Colls passed the tests for his "A" licence the machine finishing 20 yards from the mark in both tests. Mr. Dalrymple-Smith and Mr. Sturge both did very successful first solos.

The Club closed down on Friday for 10 days and the Chief Instructor states it has been the longest week he has ever known.

The month of July was another record for the Club, the total flying time beating the previous record by 55 hr.

Total Flying Time for July 255 hr. 15 min. *Instruction* 135 hr. 40 min. *"A" pilots* 58 hr. 30 min. *Soloists* 33 hr. 10 min. *Passenger Flights* 21 hr. 30 min. *Tests* 6 hr. 25 min.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending Aug. 5

Flying Time 24 hr. 40 min. *Instruction.—With Mr. Young*—Mrs Cator, Messrs. R. Harvey, A. Richardson, J. Simmons, G. Wharton, A. Cooper, C. Ranssome, D. Cobbellis, C. Land. *Soloists.*—Messrs. C. Gowing, A. Richardson, H. Cator, C. White, G. Barker, F. Gough, W. P. Cubitt, R. Potter, N. Brett, T. Image, E. Varden Smith, H. Neave, E. Lambert, G. F. Surtees, W. A. Ramsay

The fine weather which appears to have set in for a time has attracted quite a goodly crowd. When we are blessed with the return of our Moth we hope to soar into the heights of 40 and 50 hr.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. F. G. Crawford, Filton Aerodrome, Bristol.]

Report for week ending Aug. 4.

Flying Time 37 hr. 45 min. *Instruction* 25 hr. 25 min. *Soloists* 4 hr. 15 min. *"A" Licence Soloists* 2 hr. 45 min. *Passengers* (17 *flights*) 3 hr. 30 min. *Instruction.—With Mr. Travers*—Miss Miles, Messrs. Peters, Allinson, Rogers, Chopra, Singh, Lynas, Neale, Charlton, Hibbert, Greenhill, Clarke, Keeling, Byrnes, Dr. Farr. *With Mr. Culverwell*—Messrs. Allinson and Fox. *With Mr. Tratman*—Messrs. Lynas, Allinson, Greenhill, Heaven, Clarke and Byrnes.

Our total for this week is the best we have done yet. First solo flights were made by Mr. Greenhill and Mr. Lynas. Other soloists under instruction were Miss Miles and Mr. T. H. Clarke.

The Liverpool and District Aero Club.

[Sec.: A. L. Nickerson, Hooton Park Aerodrome, Hooton.]

The Liverpool and District Aero Club has now been flying month, but (like Brer Fox) has laid low.

The Royal Aero Club King's Cup Committee were optimistic en to entrust us, a new Club, with the control arrangements at Hooton Park Aerodrome, with the immediate result that Satu July 21, was decided upon as our official opening day, and a Display arranged for the afternoon. Notwithstanding that this our first attempt, as a Club, of running a race control, the R. were good enough to remark that our arrangements were admi

The programme began at 14.30 hr. with a balloon bursting petition followed by racing, bombing, and other events and d the interval for tea a polo match was played by our friends Wirral Polo Club, who have their pitch on our aerodrome. The turn of the afternoon was an aerobatic display by two machines belonging to the Club) which arrived out of the blue, tore the sphere into chunks, did some of the prettiest slow rolls one seen—and departed. . . . .

The Avro Avian machine presented to the Club by our Pres Sir Frederick Bowring, was then christened *Terra Nova* by Ursula Filmer Sankey. . . . One wonders how dry Monopole with XX—none of the former was left in the bottle when one exa it later! Lady Ursula and her sister, Lady Mary Grosvenor, the air with Lt. Bentley, as did also Miss Margaret Bevan, Liver Lady Lord Mayor.

Our second machine, *Rangela*, XY, presented by Sir Charles Cain, was also much in evidence, and won a race.

Our third Avian, WK, has now been delivered and owing t mellowing influence of a Supper Dance at the Adelphi Hotel, pool, on the night of the 20th, and the honied brigandage o R. H. Thornton, our Chairman, will no doubt soon be paid for.

The Lancs. Aero Club, who have shown a most sporting spi giving us every possible assistance from the beginning of t kindly sent over a machine to help things along and among visiting owner-pilots were Miss W. Brown (Avian), Mr. K. Twe (Moth) and Mr. W. Styram (Avian). Visiting owner-pilots presented with silver ash-trays suitably inscribed.

Although we do not benefit under the Subsidy Scheme the is in a very enviable state, its members numbering 130.

Hooton Aerodrome is one of the finest in the North, and the has sole use of a magnificent hangar and auxiliary buildings, pos three Avian machines, Lieut. Bentley as Chief Instructor an Howard Pixton as Ground Engineer.

Flying only started on July 3. Our record to July 29 follows:—

Total Flying Time 63 hr. 38 min. *Pilots.*—J. B. Allen (Ass Instructor), V. Crosthwaite, H. Christie, F. Davison, W. Leete, E. *Instruction.*—Messrs. E. H. Williamson, W. G. Barber, J. W Irving, E. C. Francis, J. MacClure, R. Barker, W. A. Wilcox, Mitchell, H. R. Birtill, T. H. Williamson, G. Davey, J. C.

Wireless message from Capt. Courtney.

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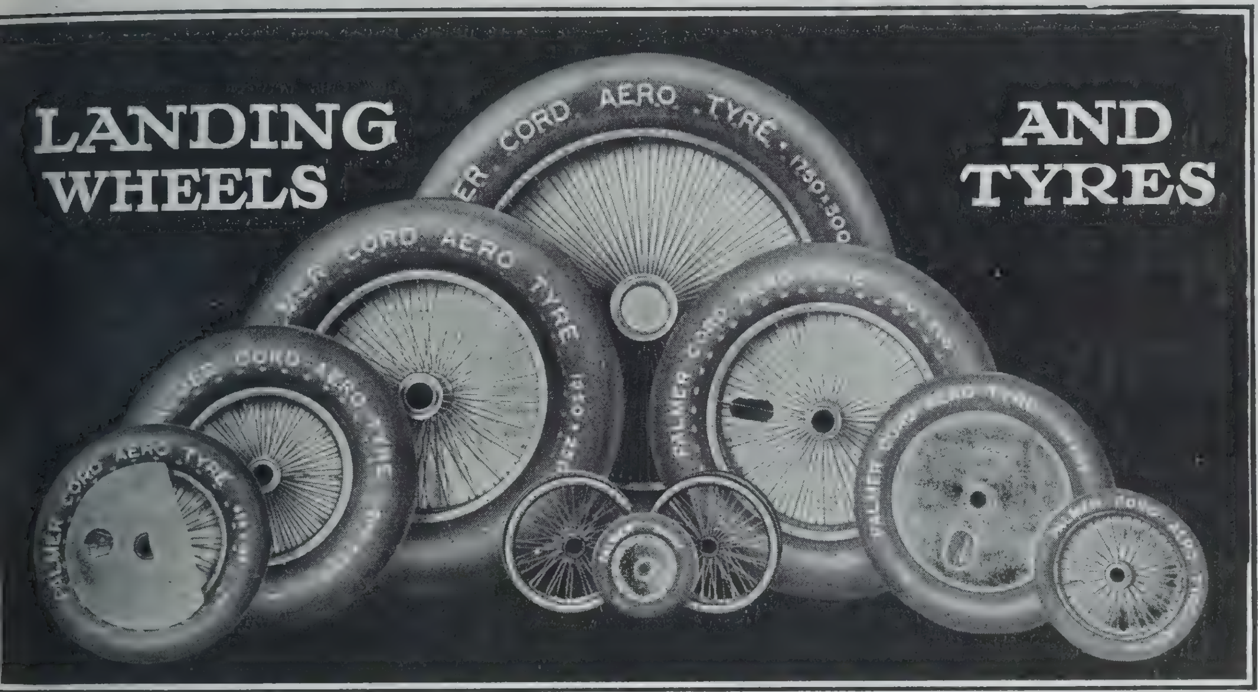

STANDARD SIZES.

Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m
375×55	168	111.12	25.4	Central
300×60	16	111.12	25.4	Central
450×60	30	89.	31.75	Central
,,	172	130.	38.09	Central
575×60	21	160.	28.	Central
,,	180	150.	38.09	104/46
,,	186	120.	34.92	Central
,,	90	150.	38.09	Central
650×65	78	178.	44.45	132 46
,,	79	178.	44.45	Central
,,	100	178.	38.09	132/46
,,	101	178.	31.75	132 46
600×75	21	160.	28.	Central
,,	180	150.	38.09	104/46
,,	186	120.	34.92	Central
,,	190	150.	38.09	Central
700×75	78	178.	44.45	132 46
,,	79	178.	44.45	Central
,,	100	178.	38 09	132 46
,,	101	178.	31.75	132/46
00×100	77	178.	44.45	132 46
,,	92	185.	55.	135 50
,,	95	185.	55.	Central
,,	99	178.	38.89	132 46

Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m
700×100	112	150.	38·09	Central
,,	176	178.	44.45	Central
,,	179	178.	55.	132/46
650×125	119	178.	55.	132/46
,,	147	178.	55.	Central
,,	188	120.	34.92	Central
750×125	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
,,	176	178.	44.45	Central
,,	179	178.	55.	132/46
800×150	161*	185.	55.	135/50
,,	162*	185.	55.	Central
,,	163*	185.	66.67	135/50
,,	169†	185.	55.	135/50
,,	177	185.	55.	135/50
,,	183	185.	55.	Central
,,	211*	185.	60.32	135 50
1000×150	167	185.	55.	125/60
,,	174	250.	80.	Central
,,	182	185.	55.	Central
,,	187	220.	66.67	Central
,,	201	185.	60.32	125 60

Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m
1000×150	210	185.	60.32	Central
1000×180	148	220.	80.	Central
,,	149	185.	55.	Central
,,	155	220.	66.67	Central
,,	166	185.	55.	125/60
900×200	107	185.	55.	Central
,,	108	185.	55.	125/60
,,	128	220.	66.67	Central
,,	137	250.	80.	Central
,,	157	185.	80.	Central
,,	202	185.	60.32	Central
1100×220	134	220.	66.67	Central
,,	136	250.	80.	Central
975×225	192	185.	60.32	Central
,,	194	185.	55.	125/60
1250×250	133	250.	80.	Central
,,	154	304.8	101.6	Central
1500×300	115	304.8	101.6	Central
,,	126	304.8	152.4	Central
1750×300	139	400.	152.4	Central
,,	191	350.	150.3	Central
1750×350	193	400.	125.	Central

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CONSTITUTION OF THE GOVERNMENT COMMITTEE

By Minute of 2nd April, 1928, the following members were appointed:—

Sir Frederick J. Willis, K.B.E., C.B. (*Chairman*).
Mr. J. C. Bridge, F.R.C.S.E., M.R.C.P.E.
Sir George S Buchanan, C.B., M.D., F.R C.P.
Mr. A. Chaston Chapman, F.I.C., F.R.S.
Professor W. E. Dixon, M.D., F.R.S.
Major W. R. Galwey, O.B.E., M.C., M B.
Mr. C. H. Lander, C.B.E., D.Sc.
Sir Charles J. Martin, C.M.G., D.Sc., F.R.C.P., F.R.S.
Mr. D. R. Pye, M.A.
Sir Robert Robertson, K B.E, D.Sc., F.R S.
Sir William Willcox, K.C.I.E., C.B., M.C, F.R.C P.
Mr. S. F. S. Hearder (*Secretary*).

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Mr. McClure, our first *ab initio*, was launched on his first solo the evening of the 29th and put up a very good show—we still h three machines and no additional grey hairs.

Mr. Benson (who is also a member of the Lancashire Club and done quite a few hours with them) did first solos on the ever of the 31st with great success.

It is hoped that private owners and others will take full advant of the Club's Aerodrome when visiting the Liverpool, Birkenhead Chester Districts. A Ground Staff is available daily (except Monda

Will those wishful to become members note that no entrance is payable by members joining before Nov. 1, 1928.

The Berks, Bucks and Oxon Aeroplane Club.

[Hon. Sec.: Miss L. Cribb, 12, Highmoor Road, Caversham, Readi

The Berks, Bucks and Oxon Aeroplane Club has been formed serve that country which falls between territories served by London, Hampshire and Bristol and Wessex Clubs.

A very active committee is in being, headed by Mr. Arthur Rus M.B.E., and efforts are now being made to obtain the neces financial help to enable the Club to begin operations with a g aerodrome, two aeroplanes, a shed, a Club-house and the neces staff.

So far no definite site for the aerodrome has been chosen, altho several have been inspected. The difficulty up to now has not b to find a suitable site, but to choose a location that is going to most convenient for the majority of members.

The Club Secretary will be glad to hear from anyone who is terested in the operation of a Flying Club in the above district full particulars of membership fees and flying charges, together a form of application for membership will be sent to all those interested. The Club would also be glad to hear from anyone is willing to guarantee financial assistance to enable it to pass thro the initial stage prior to the application for the Government gran

The Swanage and Isle of Purbeck Aero Club.

A meeting was held in the Town Hall, Swanage, on July 27, w Lt.-Col. L. A. Strange, D.S.O., M.C., D.F.C., late R.F.C. and R. and Dorsetshire Regiment, gave a lecture on the progress of avia and recommended the formation of a light aeroplane club for Swa and the Isle of Purbeck. Col. Strange was supported by Capt. Gi Chairman of the Bournemouth Branch of the Hampshire Aerop Club.

Of those present about eleven expressed their wish to learn fly, but everybody expressed willingness to help the developmen aviation. A temporary Committee was elected to go into ways means.

This Committee consists of:—Chairman, Col. Strange; Commi Capt. Jackson, Messrs. S. H. Parry, Lawson, Brown, C. C. J. De Barrett and Dr. Rees. Communications should be addressed to Strange at Worth Matravers, Dorset.

The Winnipeg Flying Club.

[Sec.: F. D. Bradbrooke, 903, Lindsay Buildings, Winnipeg.]

Report for week ending July 15.

Flying Time 54 hr. 23 min. This brings the grand total to 216 40 min. and the total number of flights to 1,924.

Dual instruction accounted for the large proportion of time, b 28 hr. 22 min. Students were Mrs. Oakes, Messrs. Antonbring, Bar Beketov, Cockburn, Cook, Furnival, George, Grainger, Thomas, P hill, Gardner, Hitchen, McBean, McDougall, McMillan, MacFarl Newart and Nanton. *Soloists* 18 hr. 52 min. with Miss Magill, Me Alleyn, Bradbrooke, Brookes, Barager, Crosby, Crabbe, Haldane, ridge, and Straith. Passengers were flown for a total of 6 hr. 30 as follows: *With M. de Blicquy*—2. *With Mr. Partridge*—4. *Mr. Straith*—3. *With Mr. Crabbe*—1.

A variety of incidents enlivened the week. Each machine s on its nose in a soft spot, breaking the propellor of KU. Barager passed the flight tests for his commercial licence and Bradbrooke the flight tests for his private licence. The examina was conducted by Sq. Ldr. Cowley, who thought the latter was first licence to be granted to a beginner in a flying club in Can Mr. Crosby indulged his well-known propensity for tail-spinning holding KB nose downwards for 17 turns.

Report for week ending July 22.

Flying Time 52 hr. 34 min., the solo machine, KB, putting in al exactly one-third of it. The total club time to date is 260 flying h and 2,300 flights. *Instruction.—With M. de Blicquy*—31 hr. 43 mi Messrs. Antonbring, Beketov, Barker, Cockburn, Crane, Cook, F val, Gardiner, George, Ovas, Sutherland, Grainger, Hitchen, McMi McDougall, McBurney, MacFarlane, McBean, Newart, Nanton Thomas. Messrs. Nanton and Barker made successful first s Other solo work done by Messrs. Alleyn, Bradbrooke, Brookes, Bar Barker, Crosby, Haldane, Nanton, Partridge, Straith, Miss Magill, a total of 15 hr. 13 min.

Dr. Alleyn was examined for his private pilot's licence on Ju by Major L. F. Stevenson, R.C.A.F., and passed his flight tests.

Passengers.—*With M. de Blicquy*—1. *With Mr. Partridge*—3.

Both machines put in a long week's work in perfect cond throughout. The only incidents out of the routine were a flig 17,000 ft. by Bradbrooke in KU on July 20 and an exceedingly ful landing by Brookes in KB when caught in a squall on July

FLYING SCHOOL.

The De Havilland School.

Report for week ending July 29.

Flying Time 242 hr. 10 min. *Instruction.—Dual*—100 hr. 45 *Solo*—123 hr. 15 min. *Other Flying* 18 hr. 10 min.

This has been another excellent week, with still more pupils. another Moth has been added to the School. Nine pupils did solos, four obtained "A" tickets, and one passed his "B" Licen

On July 25, Capt. de Havilland, flying a new Gipsy Moth, wit wife as passenger, broke the Height Record for Light Aeroplanes.

Nine new Moths were tested, and among the new owners ta delivery was the Hon. D. F. Tennant, who is keen on his new h

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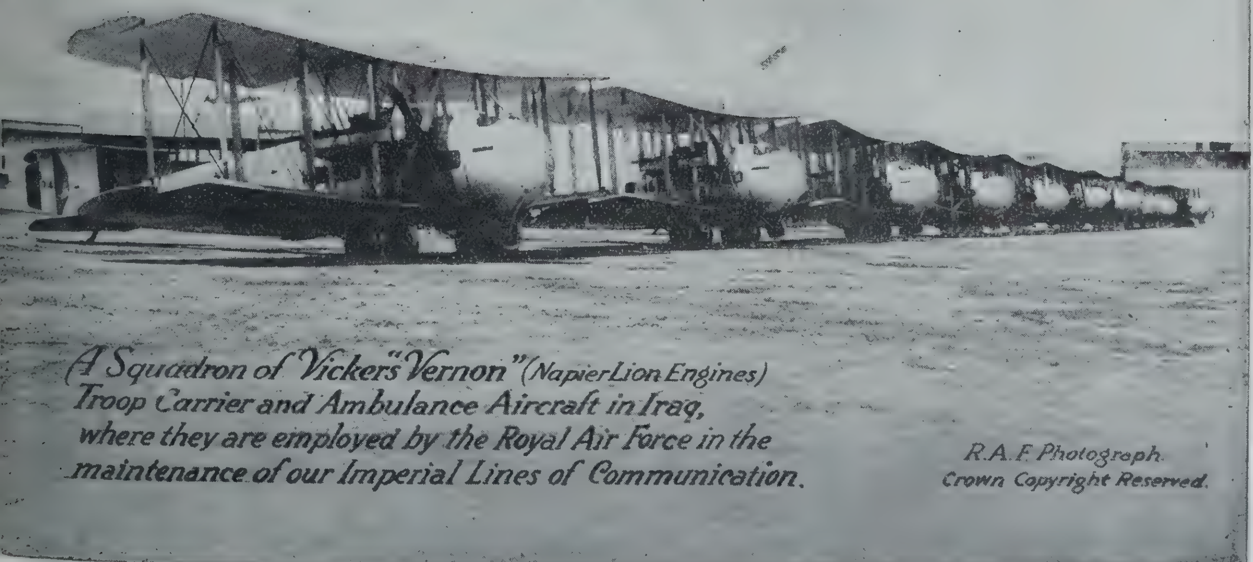

A Squadron of Vickers "Vernon" (Napier Lion Engines) Troop Carrier and Ambulance Aircraft in Iraq, where they are employed by the Royal Air Force in the maintenance of our Imperial Lines of Communication.

R.A.F. Photograph.
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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 12; Monday, 40; Tuesday, 36; Wednesday, 42; Thursday, 39; Friday, 40; Saturday, 33.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 94, passengers 850, freight 32 tons.

AIR UNION:
Paris—London and return: Machines 56, passengers 330, freight 13½ tons.

K.L.M.:
Amsterdam—Rotterdam—London and return: Machines 40, passengers 346, freight 6 tons.

SABENA:
Brussels—London and return: Machines 11, passengers 76, freight 2 tons.

DEUTSCHE LUFTHANSA A.G.:
Amsterdam—London and return: Machines 31, passengers 104, freight 5 tons.

PRIVATE:
Machines 10, passengers 5.

Total number of trips by British Machines, 103, carrying 855 passengers. Foreign Machines, 139, carrying 856 passengers.

COMPARATIVE FIGURES.

Week ending Aug. 4:
Machines, 242; Passengers, 1,711; Crews, 465; Total personnel, 2,176.

Corresponding week, 1927:
Machines, 193; Passengers, 1,248; Crews, 322; Total personnel, 1,570.

Corresponding week, 1926:
Machines, 192; Passengers, 1,220; Crews, 237; Total personnel, 1,457.

Corresponding week, 1925:
Machines, 169; Passengers, 941; Crews, 242; Total personnel, 1,183.

Corresponding week, 1924:
Machines, 181; Passengers, 930; Crews, 225; Total personnel, 1,155.

Corresponding week, 1923:
Machines, 146; Passengers, 682; Crews, 233; Total personnel, 915.

Corresponding week, 1922:
Machines, 209; Passengers, 734; Crews, 342; Total personnel, 1,076.

Corresponding week, 1921:
Machines, 155; Passengers, 462; Crews, 144; Total personnel, 606.

Corresponding week, 1920:
Machines, 115; Passengers, 240; Crews, 144; Total personnel, 384.

Note.—In addition to the Croydon traffic shown above, K.L.M. have during the past week run 12 machines, carrying 5 tons of newspapers between Lympne and Ostend.

Croydon Notes.

The week before August Bank Holiday is invariably one of extra heavy traffic, despite the fact that the greater part of that traffic still seems to be composed of American tourists to whom presumably Bank Holiday has no appreciable meaning. What happens, of course, is that British holiday-makers swell and increase the normal flow of mainly American traffic.

Apropos American tourist traffic, there seems to be quite a fashion for American women tourists to travel, by air at least, in parties exclusively feminine. There have been three or four cases lately of parties of twenty women who have filled an Argosy, and it is certainly not because these particular parties were composed of individuals who would be expected to have difficulty in finding male companions. In some instances at least the very reverse would happen.

Sir Sefton Brancker, who travelled to Paris by Imperial Airways on Friday of last week, had to be content with a seat in G-EBIX, which ran the second extra mid-day service on that day. It was generally considered thoroughly appropriate that the D.C.A. should travel in what is now known as the "Pride of the Fleet," though some critics professed to believe that the use of this particular machine on this particular occasion was merely part of a scheme to cure him of his hankering for thick-wing monoplanes.

Mr. van Lear Black, after a few weeks spent in sampling the joys of yachting, has now reverted to air-borne craft once more and left Croydon on Friday for Paris.

H-NADP, the Fokker F.VII-3M with three Titan engines on which he started for the Cape, is now in his service once more, and was used on this occasion.

Apropos the discontinuance of this flight, it appears that the trouble which led to its abandonment was nothing more than the failure of an old three-ply patch on the wing, which in conjunction with a somewhat rough-running engine, led to wing-vibration of a type abnormal on this make of machine. The machine was not new, it had several years of service before it was converted to take the new engine arrangement, and the necessary repairs, though small in themselves, could not be made in the Sudan only because
the lack of materials and skilled labour.

G-EBIX—which is the Handley Page Hamilton—has ju
been fitted with a new type of windscreen to the pilot's coc
pit. This screen consists of a sheet of non-splintering gla
sloping backwards at about 45° with above it and behind
a pair of similarly inclined sheets of glass, parallel one
the other with a gap of several inches between them.

The first sheet deflects air upwards. In the ordinary w
this air would curl over the top of the screen and into t
pilot's face. The second pair of sheets behind and above t
first however act as a sort of injector, picks up the air d
flected by the first and takes it well above the heads of t
pilot—who is thus thoroughly protected from the wind.

The gap between the lower and the upper section of t
screen gives an entirely open slot through which there is
view which cannot be obscured by rain or snow. This n
screen has been tried out in the form of a three-ply mo
up in front of the mechanic's seat, and has been found v
satisfactory. If the complete screen now fitted is as sat
factory as it promises to be it will go far to solve t
problem of giving the pilot adequate protection plus a sat
factory view in bad weather.

A NEW GRADE OF PILOT.

An Amendment to the Air Navigation Act of 1920 ma
by order in Council and published in *The London Gaze*
of Aug. 3, provides for the institution of a new grade
Pilot's Licence to be known as "a master pilot's certificat
Apparently the possession of this grade of certificate is
become necessary for the pilot of civil aircraft under cert
conditions which at present do not seem to have been p
cisely indicated.

The qualifications required for the new grade of certific
have not yet been specified in detail. They are, it is und
stood, to include a lengthy experience of flying both la
machines and seaplanes and a considerable knowledge of
navigation.

BRISTOL AIRCRAFT FOR MEXICO.

The Bristol Aeroplane Co. Ltd. has recently delivered
batch of twelve aeroplanes to the Mexican Government a
these have been duly erected at Mexico City under the sup
vision of Mr. A. S. Suddes, an engineer of the Bristol Co
pany.

This order, which was secured by Mr. H. G. Fletcher, w
respresents the Bristol Company in Mexico, comprises
Bristol Fighters and two Bristol Boarhounds (all-metal).

A Mexican War Department commission, headed
General J. L. Amézcua, was present at Filton when th
machines were tested and it was delighted with their p
formance.

AVIANS FOR THE U.S.A.

Air Associates, Inc., of New York City, has been appoin
an agent for the sale of the Avro Avian in the East
U.S.A., and has placed an order for twenty with A.I
Cirrus engines and Handley Page automatic slots.

The first two have arrived at Curtiss Field, Long Isla
N.Y., where they will be demonstrated to the public.

The Northrup Airplane Company of Minneapolis is in
ducing the Avian into the Western States and has
machine in Minneapolis for demonstration purposes.

TRAINING AIR SURVEYORS.

Owing to the growing demand for air surveys, and
difficulty of finding the necessary number of men skilled
the details of Air Surveying, the Aircraft Operating Co. I
have recently embarked on a scheme of training personnel
their own needs.

Under this scheme the firm has taken four men, all
engineering degrees, straight from the Universities, and
putting them through a complete course of training
air survey work, including flying.

Two of these new recruits come from Brasenose, Oxf
one from King's College, Cambridge, and one from the
and Guilds College, London. One of the Brasenose m
a Rhodes scholar from South Africa—is to join the Airc
Operating Co.'s permanent base at Bulawayo on complet
his training in England. The other B.N.C. man and
one from King's College, Cambridge, have had some exp
ence with the firm's Brazil expedition, and the man f
London, who has taken a special course in surveying,
had some field experience with the company in Africa.

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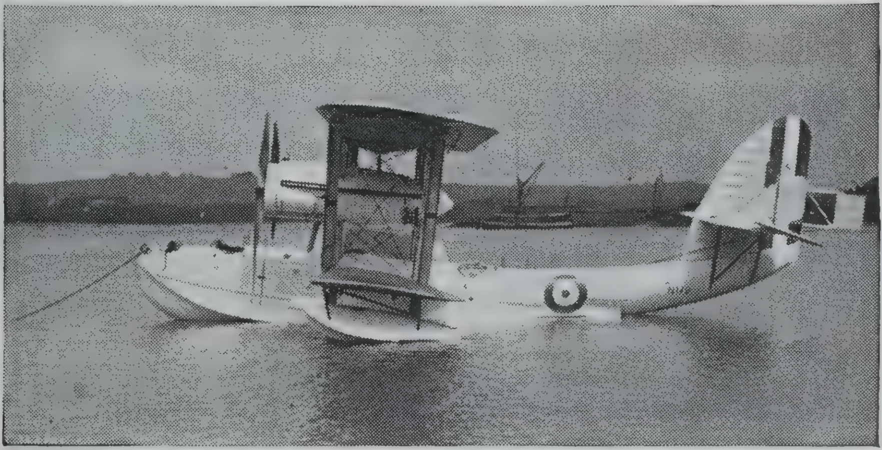

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EFFICIENT REFUELLING.

The refuelling of the Armstrong Whitworth *Argosy*, which recently indulged in a race from London to Edinburgh with the "Flying Scotsman" train, was carried out by Shell-Mex Ltd., who supply all the spirit used by Imperial Airways on their home service.

About 150 gallons had to be loaded into the machine at Bircham Newton, and every gallon had to be filtered through chamois leather filters. The spirit was pumped from 50-gallon-barrels. The fact that the *Argosy* was off again within three-quarters of an hour of landing is a tribute to the efficiency of the local Shell depot.

A PORTABLE SLIDE-RULE.

Very many people in the Aircraft Industry habitually use slide-rules in the ordinary course of their business, and some even carry such instruments about with them. The ordinary type of slide-rule—even in the five-inch size—is rather bulky for the average waistcoat pocket, may fairly easily be damaged, and it is in addition a relatively expensive affair.

A cheap, reasonably accurate and really compact pocket slide-rule, produced by Dr. Ing. Seehase, of Berlin, should be of value to large numbers of readers of THE AEROPLANE.

This type of slide-rule has scales 5 inches long, printed on card, enclosed in a transparent celluloid cover which protects the scales from dirt, and is sufficiently stiff to prevent the card from getting crumpled in the pocket, and sufficiently flexible to stand the twisting and bending to which it is likely to be subjected.

The rule is one inch wide, about five and three-quarter inches long, less than one-eighth of an inch thick and weighs less than half-an-ounce.

One variety of these rules is arranged for the direct conversion of metric to English measures. This has only the usual A. and B. slide-rule scales on the upper edge, with, on the bottom, an index mark and a series of setting marks. To convert kilometres to miles, for instance, it is necessary to bring the setting mark inscribed km. ÷ mile to the index, and read off on the A. scale, the miles corresponding to the desired number of kilometres on the B. scale. About 35 different conversions are given.

The normal rule has the ordinary A., B., C., and D. scales and is fitted with a neat celluloid cursor. This latter type of rule would be found quite handy by aerial navigators for use in the air, as well as by those who need a portable slide rule for more mundane purposes.

If there is any demand for these rules on the part c readers of this paper arrangements can be made to suppl them. The price would not exceed about 2s. 6d. each fc the metric conversion type of rule and about 2s. each fc the ordinary type and might be less if any large deman occurred.

MORE ERRORS.

In the account of the King's Cup Race the name of Mr Will Hay was included among those people who acquir the right to enter a machine for a race by hire or borrowing As a matter of fact Mr. Hay is the sole owner, proprieto and all that of the S.E.5a which was entered in his nam and was flown by Mr. Matthews. Incidentally Mr. Matthew and the old S.E. were doing wonderfully well till he un luckily broke a petrol pipe at Nottingham which delayed hir enough to spoil his chances. Better luck next time,—for Mr Hay has done a great deal to popularise flying. The Edito regrets that THE AEROPLANE is so inaccurate.

SATISFACTION.

A. V. ROE AND CO. LTD.—Satisfaction in full on June 22, 1928, mortgage debenture dated Oct. 14, 1919, securing all moneys due or become due.

NEW COMPANY.

ERIN AIRCRAFT LTD.—Private company. Registered June 22. Capita £1,000 in £1 shares. Objects: To carry on the business of man facturers of and dealers in aircraft of all kinds, to acquire patents i connection with improvements to aircraft and to carry on an a service for passengers or goods, mails, etc. The provisional directo are: J. L. O'Sullivan, 6, Talbot House, 98, St. Martin's Lane, W.C. inventor. S. C. Macklin, 6, Talbot House, 98, St. Martin's Lan W.C.2, secretary; W. Ramsay, 6, Talbot House, 98, St. Martin's Lan W.C.2, engineer. Secretary (pro tem.): B. Barrington.

PERSONAL NOTICES.

DEATHS.

BROWNING.—On Aug. 2, at Holbeach, Lincolnshire, as the resu of a flying accident, Flt. Lt. Lance Harold Browning, M.C., D.F. No. 3 (Fighter) Squadron, R.A.F.

Flt. Lt. Browning was born at Bournemouth in 1897 and educat at Wellington and the R.M.A., Woolwich. He entered the R.A. July, 1915, and was seconded to the R.F.C. as an Observer in Augu

HANDLEY PAGE
AUTOMATIC SLOT CONTROL

"——When the engine was throttled back suddenly during a climbing turn, and the machine was stalled on the turn, it was still possible to raise the lower wing by normal use of the 'stick.' It is this kind of climbing turn that, in conjunction with engine failure or loss of power, has killed so many pilots in the past, and it can be said definitely that the automatic slots have reduced its dangers almost to vanishing point."

"*MORNING POST*,"
8th May, 1928.

916. He was appointed Flying Officer, R.F.C., in June, 1917, with eniority from June, 1916. He was promoted Lieut., R.A., in July, 917, and acting Captain in May, 1919. In August, 1919, he was ppointed to a permanent commission in the R.A.F.

He was awarded the Military Cross in 1918 for gallantry and deotion to duty in the Field. The announcement of the award in *'he London Gazette* of Oct. 15, 1918, reads:—"For conspicuous allantry and daring whilst carrying out independent bombing beind the enemy's lines. He was attacked by a fast enemy scout achine, which, by skilful piloting and accurate shooting, he drove own to its aerodrome. No sooner had the enemy aeroplane landed han Lt. Browning dropped a bomb, completely obliterating the pilot vho had started to run away, and damaging his machine. He then ontinued bombing and while doing so was attacked by two more nemy scouts, both of which he drove off. He showed fine skill and ourage throughout."

After the Armistice he was posted to No. 63 Squadron in Kurdistan nd in July, 1920, was awarded the D.F.C. for gallantry and disnguished services in the Kurdistan operations. In October, 1921, he as posted to H.Q., 'Iraq Command, for Meteorological Duties. He as promoted to be Flight Lieutenant in January, 1923, and in May, 923, he was posted to H.Q., Middle East, for Staff Meteorological uties. In January, 1926, he was posted to No. 3 (Fighter) Squadron.

MOORE.—On Aug. 3, in a flying accident at Edgware, Lieut. E. L. D. Ioore, R.N., of H.M.S. *Furious*, younger son of Mr. and Mrs. C. S. Ioore, Stanhope, Bushey, Herts, aged 27.

MARRIAGES.

EMBRY—ELLIOT.—On Aug. 1, at British Consulate and Embassy Church, Paris, by the Rev. Marshall Selwyn, M.A., Flt. Lt. B. E. Embry, A.F.C., R.A.F., younger son of the Rev. and Mrs. J. Embry, Dover, and Hope, younger daughter of the late Capt. C. S. Elliot, R.N., and Mrs. Elliot, 24, Rue de Constantinople, Paris.

HYDE—BIGNELL.—On July 14, Flt. Lt. W. V. Hyde, R.A.F., only son of the late Capt. J. W. Hyde and Mrs. Hyde, Eltham, Kent, to Dorothy Evelyn, elder daughter of Mr. and Mrs. E. A. Bignell, late of Wallington, Surrey.

FORTHCOMING MARRIAGES.

BLACKDEN—ROWE.—The engagement is announced between Vyvian Quentery Blackden, R.A.F., fifth son of Brig.-Gen. L. S. Blackden, C.B.E., and Mrs. Blackden, M.B.E., of the Jewell House, Marden, and Dorothea Mercy, elder daughter of the late Archdeacon of Rochester and Mrs. Tetley Rowe, Wentways, Marden, Kent.

SUGDEN—REEVE.—The engagement is announced of Flg. Off. D. W. Sugden, R.A.F., eldest son of Col. and Mrs. Sugden, of Westgate-on-Sea, Kent, and Ash Vale, Surrey, to Margaret, youngest daughter of Mrs. M. Reeve, of Hounslow, Middlesex.

BIRTH.

MACKENZIE-RICHARDS.—On Aug. 1, at West Hill, Aldeburgh, Suffolk, to Mirabel (*née* Cobbold), wife of the late Campbell Mackenzie-Richards, Flg. Off., R.A.F.—a daughter.

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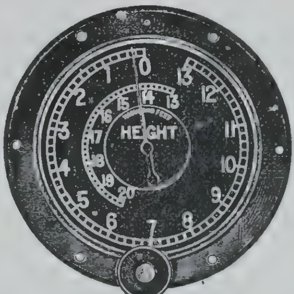

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The Aircraft Operating Co. Ltd., 8, New Square, Linco Inn, London (Holborn 8131), and Bulawayo, South Rhodesia; Cairo, Egypt; Rio de Janeiro, South Ameri Contractors to the Ordnance Survey. Laboratories and S sidiary Company for aerial photography in the British Is Aerofilms Ltd., Colindale Avenue, Hendon (Colindale 61

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IE AEROPLANE—AUG. 15, 1928.

The Civil Air Debate.

THE AEROPLANE

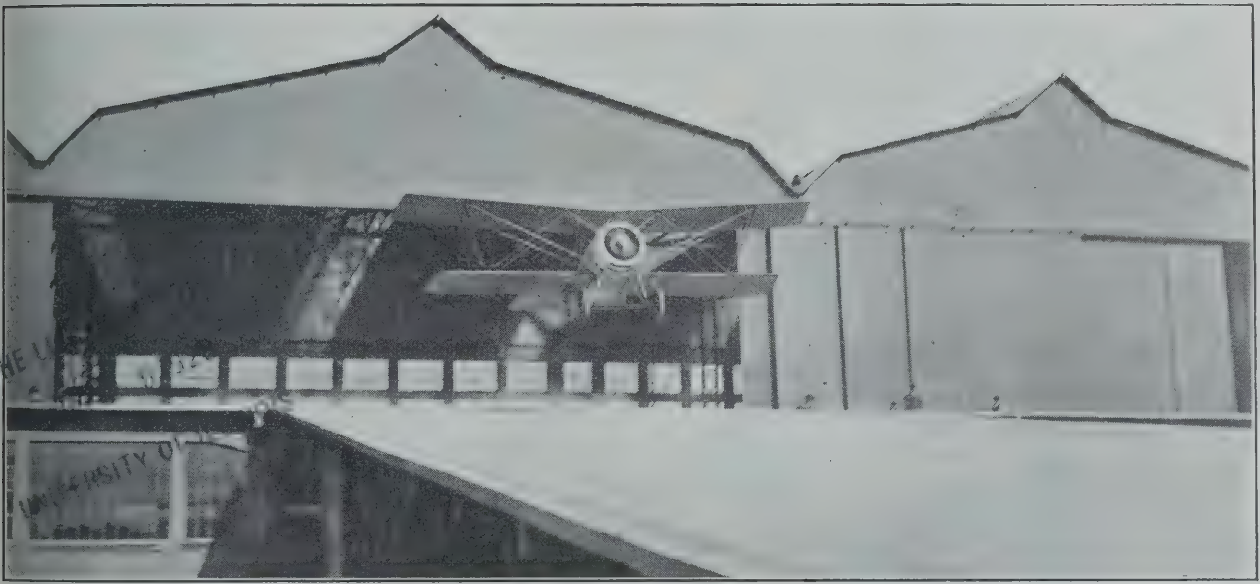
INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXXV. No. 7. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"A NOBLE ROMAN AND WELL GIVEN."

(SHAKSPEARE—*Julius Cæsar.*)



A QUICK TAKE-OFF:—A Hanriot training biplane taking off from the upper platform of one of the hangars of the new Littorio Airport of Rome, which was opened in April of this year.

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AUG. 15, 1928.

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ON THE DEBATE ON CIVIL AVIATION.

By a curious coincidence the leading article in THE EROPLANE of Aug. 1 was being put into type while the House f Commons, in Committee of Supply on July 30, happened o be discussing certain very similar subjects in a debate on ivil Aviation on the motion "That a sum, not exceeding 415,000 be granted to His Majesty, to defray the expense f Civil Aviation, which will come in course of payment uring the year ending on the 31st day of March, 1929."

The custom of THE AEROPLANE has always been to report ebates on aviation, giving as briefly as possible the main rguments of honourable members together with a running ommentary [between square brackets thus] on such points s seem to demand explanation or criticism. Therefore, one roposes to follow this custom, although doing so will force ne to repeat to some extent certain remarks made during he previous week and although the debate is now a trifle elated.

SQ. LDR. THE RIGHT HON. F. E. GUEST, C.B.E., D.S.O., pening the debate, said that the Secretary of State for Air ould welcome the fact that this was the third debate on ir matters in this session. That would show him the nterest the House took in the subject. He asked the Air Iinister to help the House and himself by giving a full utline of his views and policy for the future in connection ith Civil Aviation. It would then be up to the House to elp him to get the money, without which he could not roceed.

He asked for more of the Minister's confidence, and added hat the friendliness with which comments had been reeived had gone a long way, but the results showed that ttle had been done. British expenditure on aviation, both Iilitary and Civil, had decreased, whereas in all other ountries it had increased.

In the House of Lords Lord Halsbury had caused some larm by speaking of the rapid convertibility of aeroplanes rom commercial machines to military weapons, and by aying,—

> Much more so on the Continent than here, have civil aircraft very rgely increased and the principal difference between the civil passenger aircraft of modern construction and the bombing machine is argo.

Further, Capt. Guest quoted Sir Samuel Hoare himself as aying in a speech a few weeks ago,—

> Disarmament would not end war, and, indeed, in certain respects might even make war more horrible. War would become completely ndisciplined and unregulated, and to take a single instance, civil eroplanes with no military aeroplanes to meet them could, with npunity, deal death and destruction upon the men, women and hildren of the great cities.

[One is rather surprised at Sir Samuel talking like that. t sounds too like the Air League in its eternal rôle of the ickwickian Fat Boy trying to make people's flesh creep. resumably, in case of war between two nearly equal ations Civil aircraft would be met by Civil aircraft, and so is-honours would be even. In the early days of the war f 1914 the crews of aeroplanes, which in themselves were erfectly harmless, used to fight one another with shotuns and pistols, and one believes that the first enemy eroplane authentically brought down was hit by a certain ieut. F. V. Holt (now Air Commodore) with an ordinary ervice revolver.]

Continuing, Capt. Guest asked the Air Minister to press orward an increase in Civil Aviation so as to strengthen the otential reserves in case of war, and emphasised the imnense potential value to the State of a large supply of Civil ilots.

[This is an ancient fallacy. Under no possible conditions ould work be found in Great Britain for enough Civil pilots o make any appreciable difference in time of war. And here is no indication, rather otherwise in fact, that Civil ilots are likely to be good war-pilots. Also, the best and nost reliable Civil pilots are old war-pilots, who would proably be too old and staid for the next war. The only ossible way of getting a Reserve of Air Force pilots is by vay of the Short Service system, or something very like it. We should get far better results by spending a million or two on advertising and boosting and increasing the auxiliary squadrons, such as the one which Sq. Ldr. Guest commands, than we should by subsidising Civil Aviation as such. One still agrees with Mr. Churchill that Civil Aviation must fly by itself.]

Further, Sq. Ldr. Guest, while welcoming the new contract with Imperial Airways for the route to India, implored Sir Samuel to pay more attention to the Central African air route, pointing out that the Indian route was only to carry people from one place to another, whereas development of air lines in Africa would help materially to develop the whole country.

[This is a very good point in one way. Far better financial results could certainly be got out of the African route than out of the Indian route. But the Indian route is actually the more important, because it is, in fact, under modern war conditions precisely the same thing as a strategic railway along an enemy frontier. And, apropos the Indian route, there is still, apparently, some difficulty about our using the landing grounds along the Persian Gulf. Perhaps we have not brought enough political pressure to bear on Persia, or perhaps not enough bakshish has been handed out to the people who have to be persuaded in Persia. As a prominent member of the International Air Traffic Association remarked recently, there seems to be a good explanation of why the lion on the old Persian standard and the old Persian stamps has one hand outstretched.]

While admitting the objections to subsidies, Capt. Guest argued that if we did not subsidise our air lines we should not keep pace with the movements of other nations. He urged the S. of S. for Air to press the Treasury for help, and pointed out how the Treasury was handing out tens of millions for the unemployed and for railways and for rating relief while paltry sums were being given for aviation. He urged the importance of maintaining the aircraft industry and the highly-skilled engineers and mechanics on which its success was based. [Which is a good, sound argument.]

MAJOR HILLS pointed out that comparisons between flying in Germany and in this country were misleading, Germany being a large Continental country, whereas we were a small island, where there could never be a large demand for Home flying. Also, he pointed out that a large number of the industrial towns in Germany gave subsidies in addition to the Government subsidy, whereas towns in this country would not reap so much advantage. Thirdly, he said that all other countries spent large sums in making a great show of aviation, whereas we spent our money on establishing services which would ultimately pay. [A very good point indeed.]

He said that a commercial air service to India was the most likely to pay because there was large traffic in passengers and mails, and he thought that the Cape to Cairo project might give a stimulus to trade, but we should do better to stimulate traffic of heavy goods by sea or rail. He believed we were right in treating our air lines as commercial services, and not as training services as a reserve for war pilots.

As to the Aircraft Industry, Major Hills said that Imperial Airways were such small consumers that their orders did not really matter, but he wondered whether some efficient scheme for the manufacture of aeroplanes could be brought about by Government assistance. The demand for aeroplanes would increase in the near future, and foreign manufacturers were meeting that demand more than our own manufacturers. He suggested that with financial assistance from the Government manufacture of aeroplanes would become self-supporting, for our aeroplanes were the best and safest of any in the world.

[That, of course, would be very nice. But if British manufacturers would only make what the World's markets want they would at once become self-supporting without any subsidy. Some of the more far-sighted are doing it already.]

CAPT. GARRO-JONES gave some encouraging figures concerning the growth of Civil Aviation between 1920 and 1927, pointing out that half the letters between Morocco and France were sent by air. And he said that insurance rates on goods between this country and the Continent were lower by air than by rail and water. He also tried to emphasise his arguments by comparing the mileage on French and German air routes with those on British air routes [which, as Major Hills pointed out, are entirely fallacious].

He reproached the S. of S. for Air because the prophecies in his book *The Approach Towards a System of Imperial Communication,* published some time ago, had not been fulfilled. Our air way across Persia, he said, was still blocked; the prospective air routes in British Guiana had not been developed; the Germans were establishing an air route from Walvis Bay to Johannesburg [because of the anti-British faction in the South African Government]; the Belgians were beating us in the Congo; our aerodrome in Northern Rhodesia was degenerating into primeval bush; we had set up a great monopolistic company called Imperial Airways, some of whose directors had no business experience and little understanding of civil aviation; we had actually closed down air lines to Amsterdam, Hamburg and Berlin, as well as that from Manchester to Croydon, and in 1923 British machines carried 79 per cent. of the passengers landing in and embarking from Croydon, whereas to-day we only carried 57 per cent.

[Surely the Hon. Member should change his name to Jeremiah-Jones. All his arguments have been refuted one way or another, and the last of all is explained by the simple fact that Imperial Airways have had all their machines full up to the emergency exit for months, and consequently people have had to travel on less pleasant aircraft belonging to other nations, which, under ordinary circumstances, would be flying empty. The only way to remedy that is for Imperial Airways to buy bigger and more highly efficient aeroplanes, and for that purpose the Government certainly might with advantage contribute a good many thousands of pounds.]

Complaining still further, Capt. Garro-Jones lamented that Imperial Airways' machines had not yet been fitted with Handley Page slots; that nothing had been done to develop flying-boats; that our flying-boats were quite small affairs compared with the latest German flying-boats; that our subsidy was based on horse-power-miles and not on distance or load; and that there was no night flying. [Some of which is as it is for very good reasons. And some of which is not true.]

LIEUT.-COL. MOORE-BRABAZON said that if the S. of S. for Air would let himself go, and say what he would do if he had the money, the result would be a very pleasant and amusing evening, for the Air Ministry was a very young Ministry, and Ministries were withstood by the Treasury according to their age. The Admiralty could almost overrule the Treasury because of the Treasury's respect for age.

He wished that people could divorce the idea of training for war from the development of civil aviation. Even our films always showed aviation in war, and never from the point of view of what it was going to do for the World for good. We in this country did separate our Civil Aviation from the Military side, whereas some of the pseudo-commercial machines one saw in France and other countries would convince anybody that their routes were being run simply to exercise military machines.

He emphasised the astonishing lead we have taken with light aeroplanes, usually known as the Moth type, though that was actually a Trade name. The usefulness of that type was limited to the young man who likes flying for flying's sake. If he himself knew that a Moth would really do him some service instead of just allowing him to get the fresh air he would be an owner to-morrow. [Now then, Messieurs of the De Havilland Aircraft Co. Ltd., here is an opportunity for your salesmanship.]

Continuing, Col. Moore-Brabazon said that there were great opportunities in our Dominions and Colonies. The question of subsidy was a difficult one, but we were too prone to make our air lines fly by themselves. It was not a question of making an air route pay but of making the area which was served by an air route habitable for the European, and that was being done in many places up and down the British Empire.

MR. L'ESTRANGE MALONE complained about the misleading arrangement of and figures in the recently issued Air Ministry Report on Civil Aviation, but deduced from them discouraging figures, showing [with all the facility of an Air League lecturer] how other countries were getting ahead of us.

On the other hand, he produced some interesting facts, such as that in Germany if one travelled by air the price of one's ticket included sending one's baggage by rail, a he pointed out that on a good many German lines the c of air travel was less than that on the railways.

He complained also that Imperial Airways did not iss a definite time-table showing the connection between Im rial Airways and the Continental routes.

[Presumably Mr. Malone is concerned in working out t quickest way of getting from the country which provides living to his spiritual home in Moscow, unless it be that is equally concerned about the rapid importation of Sov gold from Moscow for propagandist purposes.]

SIR ROBERT LYNN appealed to the S. of S. for A because he was not visionary, to do something more to h Civil Aviation at home. He suggested lines from Southan ton to Manchester and Liverpool, and thence to Belf and/or to Glasgow, and quoted a telegram from the L Mayor of Belfast asking him to speak in the House favour of an experimental air service between Belfast a Liverpool.

[As indicated last week, British weather is against a thing like a regular service in any latitude north of M chester.]

MR. HORE-BELISHA said that it was amazing that in t twentieth century it should be necessary for an hon. Me ber to stand up and plead for a service between this coun and Belfast. In any other country such an appeal would entirely unnecessary. [In any other European country su a climate as that between Liverpool and Belfast does exist.]

He then proceeded to criticise Imperial Airways genera and the system which allowed it to exist. One of his ar ments was that if a pilot with Imperial Airways lost job he had nowhere else to go, and if any employee at loggerheads with the Company his whole career ruined. [Which is sheer absolute nonsense. There many more civil pilots outside the employ of Imper Airways than there are in it, and any other employee get a job in any other line of business if he is of any u apart from the fact that Imperial Airways never let a m go if he is of any use, unless he is going to a better job— a better land.]

He reproached the Government for giving all its mon to Imperial Airways and for having nothing to offer to Alan Cobham for an air line between Cairo and the Ca [Which remains to be seen.]

He also stated that the excellence of the Moth aeropla was due to the fact that Imperial Airways had had nothi to do with it.

[Which is comic in view of the fact that the De Havilla Hercules, one of the world's very finest commercial ae planes, was designed in close collaboration with the high experienced staff of Imperial Airways.]

SIR HARRY BRITTAIN flapped the usual Union Jack ov the House, and then lamented that Germany had more Ci air traffic than we had, and that America had longer lines, though without passengers. [Which seems natur seeing that we should have to run an aeroplane useles four times up and down between Land's End and John Groats to equal a single one-way trip on the Americ coast-to-coast route.]

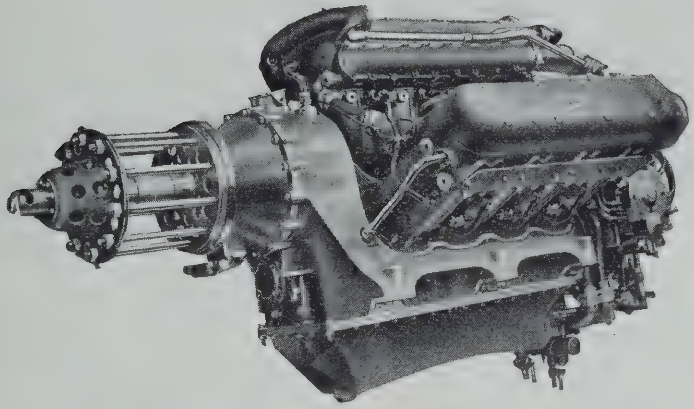
He suggested that the S. of S. for Air should take a pa of Members to Berlin to see what was being done at t Tempelhofer Feld. [Well, anyhow, they would get v good beer there, but the same might be said of the establi ment of Messrs. Barclay and Perkins at Croydon, wh probably more beer per head is drunk than at Tempelhof, because instead of sitting at a comfortable table in a be garden the spectators hang over the palings watching t aeroplanes until their throats are full of dust, and th have to beat it for the bar to get rid of the consequ thirst.]

As to internal air communications, Sir Harry said that did not think much of the possibility of development flying inside of these islands. Our roads and railways w too good and the distances too short. [Wherein he right.]

He thought a good deal might be done with flying-bo between Belfast and Liverpool, Belfast and Glasgow, H and Hamburg, Hull and Esbjerg in Denmark, and Hull a Amsterdam.

[There is practically no possibility of running a flying-b line with regularity on any of those routes, but a good d might be done in running such lines at certain seasons the year only.]

Continuing on the flying-boat tack, Sir Harry advocate flying-boat service between the West Indian islands, Brit Guiana, the Bahamas and Florida. [This sounds entici but one has been assured by an experienced resident the West Indies that there is no call whatever for int communication between the islands. Each island tra direct either with England or America, and no island is the least interested in any other. The only possible pass gers would be a few Government officials and an occasio



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employee of some firm or other which had branches in different islands. But possibly some day the Americans may find it worth while to run services direct from Florida to certain islands where their trade is important.]

Finally Sir Harry advocated strongly the backing of Sir Alan Cobham's project for an All-Red route not only across but round Africa. He said that it would in no way clash with Imperial Airways, and that it would keep ahead of France, Belgium and Spain, who were all making in that direction. [Here one finds onself in agreement with him.]

Lieut.-Cdr. Kenworthy warned Sir Harry Brittain that he would cease to receive Government whips if he made speeches such as that which he had just delivered criticising the Government. He believed that if a full House had heard his speech it would have meant the fall of the Government.

[The House had been very nearly counted out for having less than forty members present an hour or so earlier, which shows how much interest the House really takes in aviation, and indicates how little likely any Government is to fall on an Aviation Vote.]

Continuing, Lieut.-Cdr. Kenworthy asked why our manufacturers, with their very superior aviation material, took no part in the Paris Aero Show, with the exception of the Bristol and Armstrong Siddeley firms. He suggested that this showed a lack of management on the part of the Department of Civil Aviation.

[Which is unfair. Surely it was the Trade's own business.]

He advocated opening the Cairo-Cape route, as we could not fly over Persia, and said that surely flying within the Empire from a business point of view should commend itself to a Government which at election times always talked of being great Imperialists, if only to get votes. If we could not get over the Persian difficulties, which he said had still not been removed, we ought to complete the next link from India, through Borneo to Australia because if we did not the Dutch would do it. The French looked like getting ahead of us on the Indian route, and the Dutch would get ahead of us on the Australian route.

Following this, he advocated the establishment of a flying-boat service between the Western islands and the Highlands of Scotland, all up and down, within the Outer and Inner Hebrides, in competition with the MacBrayne Company, with whom, he said, there was difficulty about the mail traffic. He added,—

> You could twist the tail of the MacBraynes by developing an air service, or even by the threat of doing so, though I hope an actual airplane and seaplane service will be developed there for the good of Scotland and of British aviation.

[Not at all a bad idea for the Summer holiday season, at any rate.]

On the subject of the North Sea, he remarked that the S. of S. for Air had asked him what he was doing to develop an aerodrome at Hull. He (Lieut.-Cdr. Kenworthy) never interfered with municipal affairs, but, as a matter of fact, the Humber would provide a magnificent floating aerodrome for flying-boats for a service to Northern Europe.

He recommended the payment of a subsidy for suitable machines, pilots and material used in civil aviation in the same way as the Army subsidised lorries and as the Admiralty subsidised mail steamers. [He forgets that all pilots of Imperial Airways Ltd. have to be in the R.A.F. Reserve, and are consequently available when needed.]

Apologising for making an attack on Civil Servants, he said that it was necessary to have a change in the higher personnel of the Air Ministry if we were to make any progress. [Here one cordially agrees with him, though probably we are not thinking of the same people.]

Rear-Admiral Sueter submitted that the Air Ministry ought to support a great air exhibition in this country next year and ought to get at least £20,000 out of the Treasury for it. [One suggests that £20,000 spent on financing a tour round Europe and South America of a co-operative circus of the best British aircraft would do a heap more good, although, of course, a big aero-show in London would suit THE AEROPLANE better, because we should get more advertisements out of it.]

The Admiral suggested that at such a show we ought to have the leading people in aviation from all over the world here, and a great Imperial Air Conference. [All that sounds very well, but one's experience is that these conferences produce a lot of talk and no results. One good commercial traveller with one good aeroplane of the type which the market wants would get more business than all the conferences in the world.]

As to subsidies, the Admiral suggested that the S. of S. for Air did not put up a big enough fight against the Admiralty and the Army when the Estimates were being prepared. He allowed the Senior Services to get away with too much of the loot.

Continuing the argument by quoting the cost of building and operating warships, the Admiral was pulled up by the Chairman for getting away from the subject of civil aviation, and argued that he was merely showing where money could be obtained.

The Chairman pointed out that he really was off the s ject, because it was quite apparent that the Air Minis could not scrap battleships, and still less could he induce United States to do so.

Admiral Sueter, on the subject of airships, appealed those who were criticising them to let the experiment made first.

Sir Joseph Nall said that people were no more ready travel by aeroplane than they were by submarine so l as safer and more attractive means are available. He marked that if the subsidy paid to Imperial Airways vented more enterprising promoters from entering the fi the sooner we saved the money the better. Imperial ways did not order enough machines to be of any use the Trade, and the machines maintained by them were use for national defence, the pilots were under no obligat to serve the State [that is an error], and so civil air serv ought to be maintained under the direct administration control of the Air Ministry.

[Well, at any rate, that is one point of view, for wh there are quite good arguments. But such arguments be quite easily upset.]

The Secretary of State for Air, Sir Samuel Hoare, that though after the Chairman's ruling he could not re to the arguments of Rear-Admiral Sueter, those who wan to could continue the study of his train of thought in a v excellent book which had been published.

[Presumably, Sir Samuel referred to "Airmen or Noah obtainable from THE AEROPLANE Book Dept., price 25s.— may as well make something out of the advertisement t

He also referred to the interest which Capt. Guest taken in "the great flight carried out by Miss Earhart Mr. Stultz from the United States to these shores." [O Dutch-American aeroplane with American engines.]

Referring to the invitation to give an outline of objections which the Government had in view in the devel ment of Civil flying, he said that he would do his b Speaking generally, they had three main objectives in mi

Firstly, to devise for the country a knowledge of questions and a general interest in flying.

Secondly, to make Civil air lines economically self-supp ing.

Thirdly, to try to develop Imperial air communicati not only in the sense of actually developing air lines, also in the wider sense of making civil aircraft more us for making life better, easier and pleasanter in the rem parts of the Empire.

[Nobody could say fairer than that. And if only the jo properly done, the Department of Civil Aviation will furt justify its existence.]

As to the first objective, he said that the light aeropl club was a British creation, and he was glad to think t it was a senior officer on the military side of aviation had most to do with the institution of these clubs. T had only been in existence about two years, yet to-day t had 2,744 members, 315 licensed pilots, and had flown 6, hours in the year 1927. The first six months of 1928 sho that these figures would be greatly exceeded.

The clubs, he said, had created a demand for light a planes, for which there was an increasing sale, not only this country but in the Dominions and also all over world. Many club members had made adventurous journ even to such distant parts as Australia and South Afr In the first six months of this year 191 new certificates been issued, and the number of civil privately-owned chines had increased correspondingly. This showed some success had been achieved in disseminating a kn ledge of civil flying in our great cities and in encourag civil men and women in learning to fly.

As to the second objective, he said that it was essen that at some time or other Civil flying should be free Government subsidies, for subsidies immediately produ problems of control and regulations, and questions as who should receive the subsidies. The test of the po was not the number of miles flown by this or that coun Conditions were so different. The real test was whether policy was likely to help civil aviation to develop, likely produce up-to-date machines, and likely to put civil aviat in a position where it would not want Government subsi at all.

Results showed that in the last three years the tonn carried by Imperial Airways had risen by 66.3 per cent., compared with that carried by its predecessors in the th years prior to its formation. The load factor of Impe Airways' machines was 66.27 per cent., which was hig than the load factor either in railways or shipping.

On the Cairo-Basrah route in the course of twelve mon the weight of letters carried had risen from 856 pounds 5,560 pounds.

Our cost of operation was going down at a much quic rate than that of foreign countries. In 1924 the cost

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Imperial Airways was 4/3d. per ton mile. It had now been reduced to 1/10d. per ton mile.

Maintenance organisation had been improved, with the result that whereas in 1924 Imperial Airways' machines flew between 20,000 and 30,000 miles between overhauls, to-day the figure was between 35,000 and 50,000 miles. In 1924 Napier Lion engines were overhauled on an average every 159 hours. In 1927 the figure was 285 hours. [Some R.A.F. squadrons are getting about 400 hours, one believes, between overhauls.]

Insurance premiums were steadily falling. In 1924 the premium on Imperial Airways' machines was 20 per cent. This had now fallen to 10 per cent. He submitted that these facts showed quite definite progress during the last three years.

As showing what other people thought of us, he mentioned that the official bulletin of the Guggenheim Trust (which exists to improve the safety of flying) held up British Civil Aviation as an object for admiration. Our safety record was better than that of any other country. Three million miles have been flown without a serious accident to paying passengers.

He did not want to appear complacent and self-satisfied, and he hoped to see much quicker development in the next ten years. As to the Persian difficulty, he had within the last two days had the privilege of discussing this question with that very distinguished statesman Prince Teymowrtache, and he still thought that we should have our line operating across Persia by April next. (One hopes not as a *poisson d'Avril.*)

As to the Cape Town route, Sir Samuel said that he had asked Sir Alan Cobham to put detailed proposals before him, and he was closely in touch with the Colonial Office and the various Governments concerned on the route. So he hoped before the end of this Parliament to see whether we could not make a start with that great Imperial air route.

Speaking generally, he believed, as the result of experience, that so long as the Government was giving the subsidy to Civil Aviation it would be better to give it to one company rather than to a number. When we were subsidising a number of small companies we were subsidising the overhead costs of a number of companies competing with each other, and progress had been quicker under a single bounty. But, naturally, he was prepared to consider the best proposals from whatever source they came.

The line to the Cape was in a sense Imperial, but it was also African, and he thought that it would be very unwise for any Secretary of State for Air to carry the chief burden of a route the main benefits of which would accrue to the Governments through whose territory the route actually passed. Sir Samuel added,—

> I must, therefore, say quite clearly that if at any time in the future the British taxpayer is called upon to pay a subsidy to a line of that kind, the Governments served along the routes must do their full share, and they must only come down on the British taxpayer to make up the deficiency—I hope it may be a small deficiency between the amount that the Governments put up and the amou needed to start the line.

He added, that perhaps in time we should need a subsic from 'Iraq.

On the subject of airships, he believed that they wou go very far towards solving the long-distance non-stop pr blems of Imperial routes. Airships would avoid the politic difficulties of the routes caused by landing in foreig countries.

[What about the political difficulties of flying over foreig countries without the permission of those countries? Pr sumably the only thing which stops us from landing troo in Persia and occupying the aerodromes along the Persia Gulf is public opinion in other nations which are jealo of us. Suppose we flew over Persia without landing, ar Persia raised a row about it, should we not be equally u popular in countries which are jealous of us? The offen against the integrity of national territory is the same, ar differs only in degree. One seems to remember that t Treaty of Versailles or the League of Nations, or somethir equally theoretical, confirmed the creed that each natic owns the air over itself.]

On the subject of the proposed West Indian air servic Sir Samuel remarked that this is a matter for the We Indian Governments.

As to the proposals for flying-boat services between Lo don and Ireland and the West Coast of Scotland, he sa that a committee was looking into these matters, ar suggested that the Air Ministry might reasonably expe some financial assistance from Belfast and the North Ireland.

In reply to a suggestion by Lieut.-Cdr. Kenworthy th the Royal Air Force should run a service to the Weste Isles of Scotland as they had run the route to Cairo a Baghdad before Imperial Airways took it over, Sir Samu said the whole movement in the League of Nations at Gene was to differentiate between Military and Civil flying a though he would be the last to deny that Civil Aviation mig be of great help in time of emergency, he thought the wi policy was to keep the two separate and to develop Ci Aviation on Civil lines.

Looking back on the past years he thought that we h not done badly. We had a Civil line which was the en of every country, we had a remarkable record of reliabilit and we had data on which we could base our plans for t future. We had now got to the stage when we could s clearly that with possibly two or three more changes fro the present type to more up-to-date types, our aeroplan would be covering expenses and our aircraft would actually self-supporting.

[A good and lucid speech. One hopes that, if any mo money be allocated for aviation this or next year, it w be all well and carefully spent.—C. G. G.]

THE BELFAST-LIVERPOOL PROPOSITION.

The following letter is of interest :—

Sir,—To one who has been doing his best to create "airmindedness" in Ulster, it is distinctly disappointing to see your attitude in your issue of 1st inst. regarding the matter of an Air Service.

You usually hold pretty advanced views on things that matter in aviation circles, but here you seem to assimilate the spirit which a few of us here have been doing our best to combat—the spirit of "What's the use?"

Now it is waste of time to argue the pros and cons of such things as air lines with the *cognoscenti* like yourselves. We all know the advantages, some true and many doubtful, which are handed out to the lay public. But surely one thing we are all agreed on is the fundamental truth of the axiom, "time is money." And the sooner we can find some form of transport to cross that 120 miles of water between Belfast and Liverpool in less than eight hours the better for us all.

Assuming this, can it be fair to quote the precedent given by Northern Air Lines Ltd.

With all due regard to that enterprising concern, its aerodrome "alongside the Lisburn Road," far from being "a very decent one," was unsafe, unsuitable and most inadequate. And it, coupled with the unsuitable type of machine used, helped largely to spell the doom of the enterprise, however competent the pilots and energetic the organisers.

That was over four years ago, and you will surely admit progress has been made since then both in machines, meteorology and methods.

Then the weather. Is it so bad as made out? Agreed that aeroplanes can fight their way through bad weather as easily as flying-boats, but the trouble is and was to get them off Irish bogs.

Belfast has in the making a perfect aerodrome from reclaimed land by the Lough—acres and acres of it, sandy, well-drained soil. When that is available use aeroplanes perhaps,—but "confidence" is a great thing, and it is not conducive to confidence to fly long distances 100 feet above the water in land machines. Bad as the weather is, there are many more occasions when it is possible to fly across below low clouds a few hundred feet up or less, than not at all.

However, we in Belfast are agreed that however accomplished, the next venture must be a success, therefore we are anxious that only the most efficient, thoroughly organised, and well backed concerns shall attempt it. The bad taste left in the mouth of the Northerner by the last effort must be eradicated.

Apart from all this, we are continuing our air-mindedness campaign, largely with the possibility of a Light Aeroplane Club in view.

I personally feel that there is sufficient anti-flying feeling to overcome already, without it being made harder to combat by inter schisms amongst the few aeronautical periodicals we have availa to us.

Gen. Groves is fully alive to all the facts you accuse him of havi forgotten, as I have discussed things regarding aviation in Uls generally with him at some length.

You, likewise, are read, marked and learned (if not always inwar digested) and I maintain in these yet early and critical days t nothing should be done to undermine the confidence of those who eagerly seeking after knowledge.

To that end in general, and to our end in particular, let all w can fly to Ulster—we have an interesting motor race pending Aug. 18—and let all who fly—land in Belfast—not at Aldergrove, miles out, where nobody sees or hears of them, and where the wh advantage is lost by reason of the road journey afterwards.

Thus by a few practical demonstrations can it be decided that th is one better way of crossing the ditch than the new, excellent slow, Belfast—Heysham steamer.

(Signed) R. CHEVALLIER PRESTON

The arguments set forth are interesting, but they based on certain fallacies. The real objection to the p posal is that it holds forth hopes of a regular all-the-ye round service running to a time-table like a railway or steamship line. And one is quite certain that such a serv cannot be run regularly in the Winter.

Even the magnificent steamers on the Heysham-Belf route are occasionally held up by sheer roughness of weath and by fog. One admits that there are times when aircr can cross water in comfort when people on steamships having a very bad time indeed. But that applies to are where there are strong winds combined with fine weather

The trouble about the North of the Irish Sea is low clo heavy rain and wind combined. And people are not lik to face cheerfully the prospect of flying over 120 miles sea which would break up any existing flying-boat insi of half an hour if it came down in it.

Another drawback to the running of an air service, reg lar or irregular, is that passengers and mails can leave Lond at a reasonably late hour in the evening and reach Belf

ENGLAND TO S. AFRICA.

The Long Trek!

Travelled by Lt. R. R. Bentley, M.C., A.F.C. (both ways), Lady Bailey, Lady Heath, and now by Lieut. Murdoch,

ALL ON

CIRRUS - ENGINED
LIGHT AEROPLANES.

Lieut. Murdoch left England on 29th July and arrived at Capetown on the 12th August flying a CIRRUS-AVIAN Light Aeroplane.

In World Flights by Famous Pilots, in Air Racing, in the daily round of the Club Work, for Service Training on Land and on Sea, in Great Britain, Europe, and throughout the whole World, the "CIRRUS" engine has given PROOF OF THE UTMOST RELIABILITY and economy together with an unequalled capacity for hard work under all conditions.

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very early in the morning. Consequently, the proposed air line would have to depend for its existence entirely on daylight traffic in passengers, goods and mails between Belfast and Liverpool, with perhaps some from Manchester and other Lancashire industrial towns. For Lancashire passengers this is no particular inducement, because they can go on board at Heysham late in the evening and spend the night comfortably on the boat.

During the Summer there might possibly be enough traffic between Lancashire and Ulster to make a flying-boat line a paying proposition. But the traffic would probably be much more of the holiday kind than of an ordinarily commercial nature.

Naturally one is all in favour of creating airmindedness in Ulster. And precisely for that reason one publishes these arguments. As Mr. Preston says, "the next venture must be a success." And consequently one feels that the air-minded people of Belfast would do better to concentrate their energies on running a successful light aeroplane club than in trying to run a regular air line which can scarcely hope for success.

If anybody can be induced to do it, by all means let them put on a flying-boat service to take people in a hurry to the motor races on Aug. 18. But one is convinced that the promotors of the proposed service are making a mistake in promising Belfast a regular air service when regularity cannot be guaranteed.—C. G. G.

MR. COURTNEY IN NEW YORK.

On Aug. 7, Mr. F. L. Courtney and his three companions arrived in New York on the Atlantic Transport liner *Minnewaska,* which picked them up in mid-Atlantic.

A special reception committee appointed by the Mayor of New York met the *Minnewaska* outside New York harbour and in their haste to reach New York before dark they transferred the party to their special steamer before consulting the immigration authorities. The result was that Mr. Courtney and his associates, Messrs. Pierce, Gilmour and Hosmer had to interview the Ellis Island authorities, to explain that they were not personally responsible for their illicit landing. In the meantime it appears that according to law the Atlantic Transport Line is liable to a fine of £1,000, the penalty for allowing passengers to land without the necessary passes.

New York's reception of the party lacked warmth, partly because they landed after office hours and partly because civic greetings to ocean flyers, successful or unsuccessful, now lack novelty. Shortly after five they proceeded by car, escorted by the Mayor's Reception Committee, to the City Hall, where they were welcomed by the Mayor. They paused for a few minutes on the steps to permit of short speeches being made into the microphone of the "talking movies."

Mr. Courtney expressed his gratitude to his rescuers, apologised for giving them a lot of trouble, and thanked New York for its welcome, which, he said, was very gratifying in the circumstances, and not, he felt, very highly deserved. He and his fellow-voyagers had done their best, and hoped for better luck next time.

The Dornier flying-boat which was abandoned by the *Minnewaska* when she picked up its crew was later fou by the Italian steamer *Valprato* and has been taken Sydney, Nova Scotia.

LONDON—CAPE TOWN.

On Aug. 8 Lieut. Murdoch, S.A.A.F., who is flying fr London to Cape Town and back on an Avro Avian (A.D Cirrus engine), left Tabora at dawn and flew to Broken H where he arrived at 19.00 hrs. After a few hours' sleep left the same evening for Bulawayo where he arrived on t following day.

On Aug. 10 he flew from Bulawayo to Pretoria, landing Roberts Heights, the South African Air Force Headquarte

On landing he was informed by the authorities that had been formally placed under arrest for overstaying leave since Aug. 1, but after parading before the Co manding Officer he was informed that he would be allow to proceed to Cape Town.

On Aug. 12 he flew from Pretoria to Cape Town.

Mr. Murdoch left Croydon on July 29 so that he has cove the distance of approximately 8,000 miles to the Cape thirteen days, which represents an average of over 600 mil flying a day. This flight proves the feasibility of operat a commercial service between London and the Cape i fortnight but that it should be demonstrated by a light ae plane reflects great credit on Mr. Murdoch, the Avro Av and the 30/80 A.D.C. Cirrus II engine.

One unfortunately hears very little of the activities of South African Air Force, but if its flying personnel ma tains the very high standard which has been shown by b Lieut. Murdoch and Lieut. Bentley, M.C., A.F.C., there be no doubt that although a small force it is a very effici one.

SYDNEY—PERTH.

On Aug. 9 Capt. Kingsford Smith and Mr. Ulm, Australians who recently flew from San Francisco to Sydn flew from Sydney to Melbourne on their Fokker monopl. "The Southern Cross," accompanied by an engineer, a na gator and a wireless operator.

On Aug. 12 they left Melbourne and flew non-stop Perth, Western Australia, where they arrived the follow day. They covered the 1,950 miles in 23 hours 24 minu

HARD LUCK.

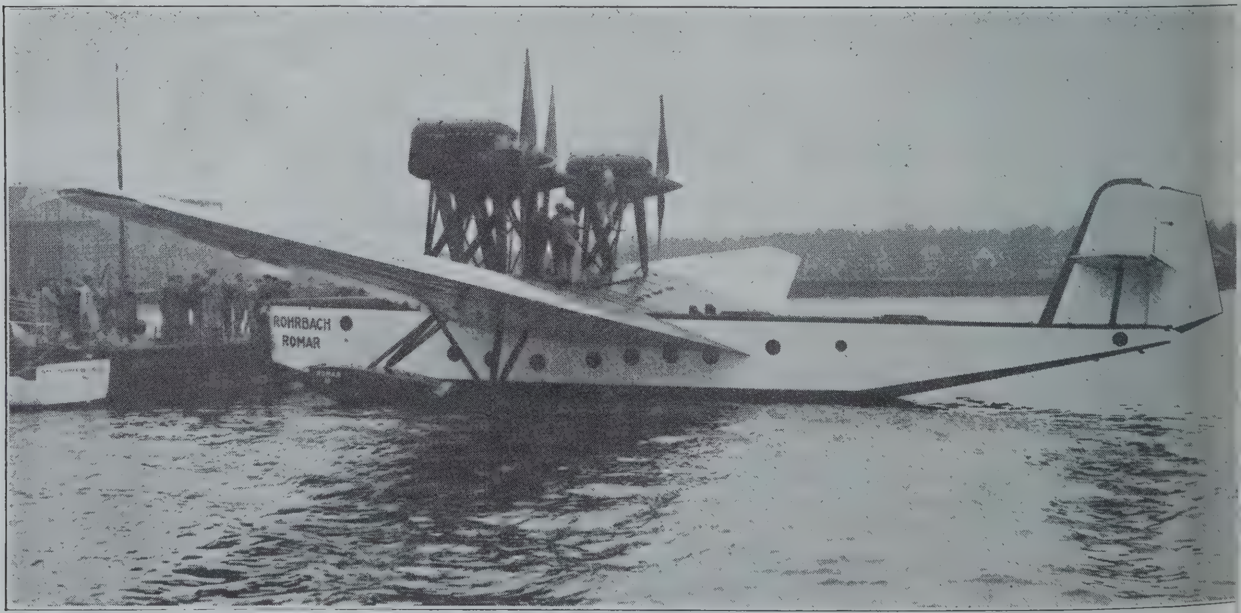
A storekeeper of the 21st *Regiment d'Aviation,* statio at Nancy, who was flying as a passenger in one of the craft of the unit, suffered the misfortune to fall through floor of his cockpit and was killed.

THE ROHRBACH ROMAR.

The Rohrbach Romar (three 550/720 h.p. B.M.W. engines) made successful first trials off Travemünde on A 7, and in a series of evolutions, which lasted over an h she performed with every satisfaction.

Three of these flying-boats have been ordered by Deutsche Lufthansa A.G. with a view to their being used a trans-Atlantic air service by stages, the longest of wh will be from the Cape Verde Islands to Fernando Noro across the South Atlantic.

The principal dimensions of the Romar are as follo Span—121 ft. (36.9 m.); Length—72 ft. 8 ins. (22 Height—17 ft. 10½ ins. (8.5 m.); Wing area—1,829.8 sq (170 sq. m.); Weight loaded—41,140 lbs. (18,700 kgs.).



THE ROHRBACH ROMAR.—The latest product of the Rohrbach Company built to the order of the Deutsche Lufthansa, which has just made its first tests at Travemünde.

The Gipsies invade Australia!

THE Gipsy Moth will shortly be seen "down under"; the Controller of Civil Aviation for the Australian Commonwealth has placed an order for a number of these machines. The Moth is extensively used by the Royal Australian Air Force for training purposes: its absolute reliability coupled with its unequalled performance has no doubt influenced Australia's choice of the Gipsy Moth.

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1001 Federal Buildings, 85 Richmond Street West, Toronto 2, Canada.
Telegrams: Moth, Toronto.

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THE ROYAL AIR FORCE.

The London Gazette.

Aug. 7.

GENERAL DUTIES BRANCH.—Sq. Ldr. F. J. Vincent, D.F.C., is granted a perm. comn. in this rank (Aug. 8). Lt. J. F. Fearon (The Green Howards) is granted a temporary comn. as a Flg. Off. on seconding for four years' duty with the R.A.F. (July 14).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—F. H. L. Searl (Jan. 14) (substituted for the notification in the *Gazette* of May 8); F. J. Taylor (July 4); W. G. H. Ewing (July 15). Plt. Off. U. H. Mignon resigns his S.S. comn. (July 30).

STORES BRANCH.—Flg. Off. W. J. Eagle is transferred to the Reserve, Class C (April 7) (substituted for the notification in the *Gazette* of April 13).

MEDICAL BRANCH.—Flt. Lt. H. W. Corner, M.B., is granted a perm. comn. in this rank (Aug. 8). Capt. W. R. Wotton (Army Dental Corps) is granted a temporary comn. as a Flt. Lt. (Dental) on attachment to the R.A.F. (July 1). Flt. Lt. (Hon. Sq. Ldr.) J. W. H. Steil, M.B., relinquishes his temp. comn. on completion of service, and is permitted to retain his rank (Aug. 1).

RESERVE OF AIR FORCE OFFICERS.—GENERAL DUTIES BRANCH.—The following are granted comns. in Class A.A. (ii) as Plt. Offs. on probation:—L. L. J. Davies, G. D. Emms, E. J. B. Langhorne, S. M. Thompson, T. D. Trouncer (July 23); G. G. W. Farquharson (July 24); H. Clive Smith (July 24); D. L. Hodge (July 26). F. C. Bridle is granted a comn. in Class C. as Flg. Off. (Aug. 7). Flg. Off. R. B. Tapp is transferred from Class A. to Class C. (Aug. 8). Flg. Off. B. A. Davy resigns his comn (Jan. 24) (substituted for the notification in the *Gazette* of Mar. 20).

AUXILIARY AIR FORCE.—GENERAL DUTIES BRANCH.—No. 601 (COUNTY OF LONDON) (BOMBING) SQUADRON.—The following Plt. Off. to be Flg. Off.:—A. G. Haward (July 25). No. 603 (CITY OF EDINBURGH) (BOMBING) SQUADRON.—The following to be Plt. Off.:—J. E. Glenny (July 11). No. 605 (COUNTY OF WARWICK) (BOMBING) SQUADRON.—The following to be Plt. Off.:—G. H. Aldridge (July 17).

Appointments.

Week ending Aug. 13.

GENERAL DUTIES BRANCH.—Wing Commanders B. L. Huskisson, D.S.C., to C. and M. Party, Cattewater, 1/8. P. F. S. Morton, to R.A.F.M.T. Depot, Shrewsbury, pending taking over command, 14/8.

Flight Lieutenants C. E. W. Lockyer, to R.A.F. Cadet College, Cranwell, 20/8. F. E. Bond, to R.A.F. Depot, Uxbridge, 15/8. J. R. Wolley, to No. 2 Sqdn., Manston, 31/7. G. F. Smylie, D.S.C., to No. 1 School of T.T. (Apprentices), Halton, 15/7. L. W. Jarvis, to H.Q., Halton, 26/7. S. D. Macdonald, D.F.C., to No. 24 Sqdn., Northolt, 8/8. F. H. Shales, to No. 22 Sqdn., Martlesham Heath, 8/8.

Flying Officers E. A. Healy, to R.A.F. Cadet College, Cranwell, 8/8. C. Guppy, to No. 2 F.T.S., Digby, 8/8. P. P. Grey, to No. 5 F.T.S., Sealand, 8/8. W. V. R. Nicholl, to No. 5 F.T.S., Sealand, 8/8. J. F. Lawn, to No. 3 F.T.S., Grantham, 8/8. J. R. Brown, D.F.C., to No. 9 Sqdn., Manston, 11/8. J. H. Pool, to Night Flying Flight, Biggin Hill, 24/7. A. A. Jones, to E. and W. School, Flowerdown, 14/8. S. G. Connolly, to H.M.S. *Argus*, 1/8. P. Jones, to School of Naval Co-operation, Lee-on-Solent, 8/8. B. W. Barton, to No. 441 Flight, 25/6. A. R. Ward, to No. 441 Flight, 22/6.

Pilot Officers A. P. Miller, to No. 9 Sqdn., Manston, 17/8. V. S. W. Smyth, to No. 12 Sqdn., Andover, 17/8. M. Lowe, to R.A.F. Cadet College, Cranwell, 8/8.

STORES BRANCH.—Flight Lieutenants W. J. Cleasby, to R.A.F. Stat Upper Heyford, 1/8. L. T. Sanderson, D.S.M., to Home Aircraft De Henlow, 30/7.

Flying Officers D. A. W. Sugden, to R.A.F. Depot, Uxbridge, G. G. C. Pigott, to E. and W. School, Flowerdown, 13/8.

ACCOUNTANT BRANCH.—Flying Officer H. S. Withers, to R.A.F. Stat Duxford, 17/8.

The Air Defence of Great Britain Comman Exercises.

The Command Exercises of the Air Defence of Gr Britain began at 18.00 hours on Aug. 13, and will end at 0 hours on Aug. 18. If the weather has not interfered w the Exercises by 09.00 hours on Aug. 17, the Air Officer C manding-in-Chief may end the Exercises at that hour.

The main object of the Exercises this year is to test operational efficiency of the individual Units of the Comma and not to test the efficiency of the Air Defence of London.

The two opposing Forces are (A) the Eastland Force, c sisting of the Units of the Wessex Bombing A under Air Vice-Marshal Sir John Steel, K.B. C.B., C.M.G., No. 1 Air Defence Group, un Air Commodore E. L. Gerrard, C.M.G., D.S.O., 503 (Bombing) Sqdn. (a Cadre Squadron comprising a portion of Special Reserve *personnel*) and the Night Fly Flight, operating under direct orders from H.Q., A.D.G. and (B) The Westland Force, consisting of the Units of Fighting Area under Air Vice-Marshal Sir Robert Broc Popham, K.C.B., C.M.G., D.S.O., A.F.C., the 1st Anti-Airc Battalion, R.E., and Air Defence Formations, T.A.

The operations will begin each day at 18.00 hours and fi at 09.00 hours the following day.

A full account of the operations will be given in THE A next week.

The Higher Command.

The Air Ministry announces that Air Marshal Sir J M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O., A.D.C., been selected to succeed Air Vice-Marshal Sir Philip Game, K.C.B., D.S.O., as Air Member of Council for sonnel at the beginning of January next, and that Air V Marshal Sir Edward L. Ellington, K.C.B., C.M.G., C.B will at the same time succeed Air Marshal Sir John Salm as Air Officer Commanding-in-Chief, Air Defence of G Britain.

Air Vice-Marshal Sir Edward Ellington, K.C.B., C.M C.B.E., was born in 1877 and educated at Clifton and R.M.A., Woolwich. He entered the Royal Artillery in and was promoted to be Lieutenant in 1900 and Captai 1904. He successfully passed a course at the Staff Coll Camberley, in 1908.

He learned to fly on a Farman biplane at Brooklands his Royal Aero Club certificate No. 305 is dated Oct. 1,

IN INDIA.—A Handley Page Hinaidi bomber (two Bristol Jupiter VI engines) on the landing ground at Arawali, on the N.W. Frontier of India, 3,700 feet above sea level. This machine has completed extensive trials in India with complete success, the twin air-cooled engines showing remarkable reliability in spite of the climate.

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7 CYLINDER
200 - 225 h.p.

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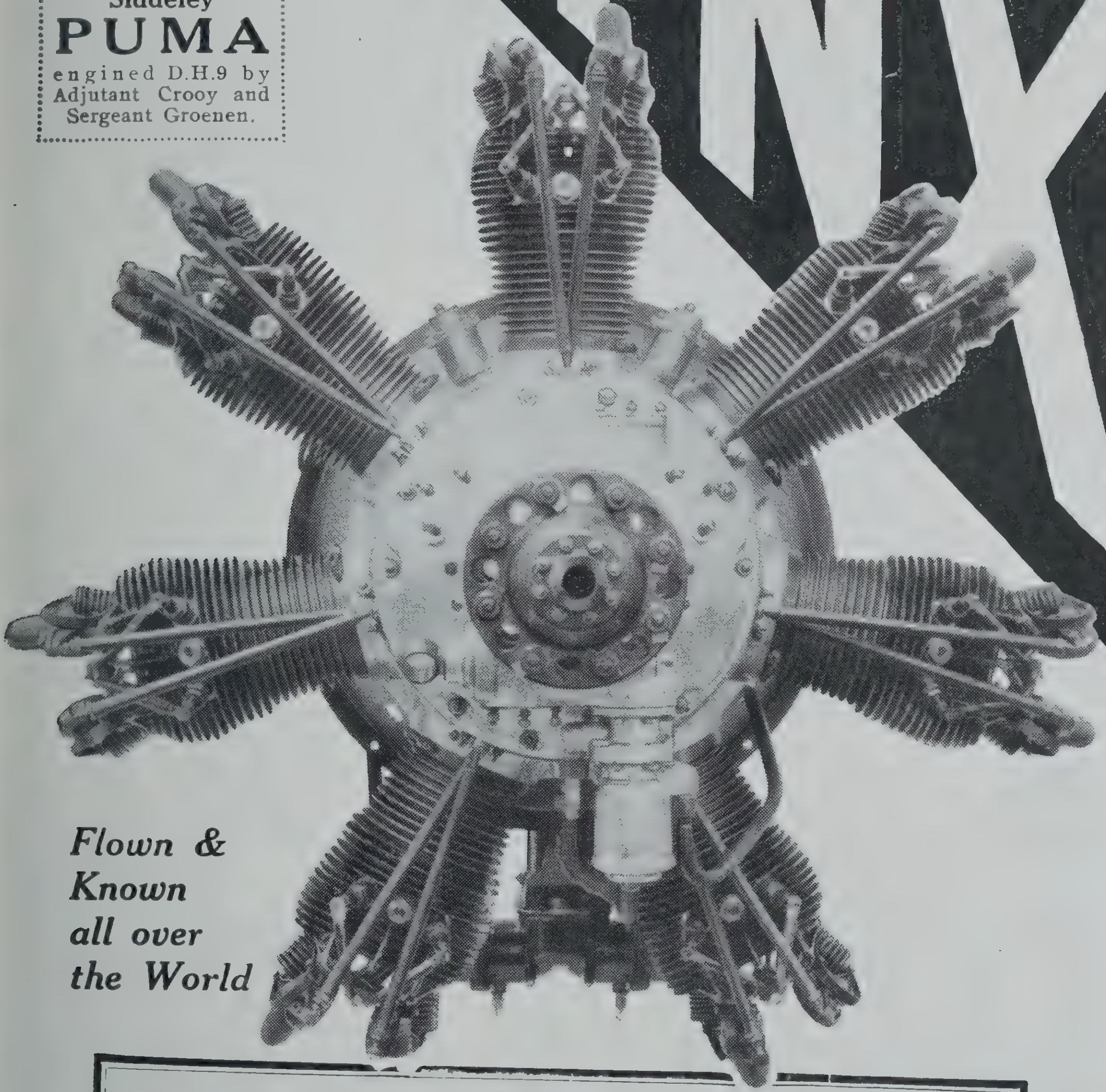
PUMA
engined D.H.9 by Adjutant Crooy and Sergeant Groenen.



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A 73

He was attached to the Royal Flying Corps in 1912. In November, 1912, he became Secretary of the War Office Committee which, under Brigadier-General Henderson, had prepared the plans for the formation of the R.F.C. In May, 1913, he was appointed G.S.O. II.

On the outbreak of War he was appointed D.A.Q.M.G. and was promoted to be Major, R.A., in October, 1914. He was awarded the Croix de Chevallier, Legion of Honour in November, 1914. In 1916 he was made Brevet-Colonel for distinguished service in the Field, and shortly after was made a Companion of the Order of St. Michael and St. George. He held various Staff appointments in France during the War and in 1917 was appointed Deputy-Director of Military Aeronautics at the War Office.

In January, 1918, he became Director-General of Military Aeronautics, and in August, 1918, he was made Controller-General of Equipment at the Air Ministry. In the New Year Honours of 1919 he was appointed to be a Companion of the Bath for services rendered in connection with the War. In the King's Birthday Honours of 1919 he was made a Commander of the British Empire and in August, 1919, he was appointed to a permanent commission in the Royal Air Force with the rank of Air Vice-Marshal and became Director-General of Supply and Research and a Member of the Air Council. He was made a Knight Commander of the Bath in 1920.

From February, 1922, until October, 1923, he commanded the Royal Air Force, Middle East, and in November, 1923, he became Air Officer commanding, R.A.F., India. In 1926 he was appointed to command the British Forces in 'Iraq.

An account of the career of Air Marshal Sir John Salmond appeared in The Aeroplane of Mar. 7, 1928.

The Air Cadetships.

The following have been declared by the Civil Service Co missioners to be the successful candidates at the compe tion held in June, 1928, for admission to the R.A.F. Cad College, Cranwell, but their admission is conditional on th having passed a medical examination. The names are order of merit :—

Cleland, A. G., Forrest, C. E. M., Vaughan-Fowler, D. G., Dashp R. B., Littler, C. E., Bader, D. R. S., Smith, R. F., Stephenson, G. Pretty, W. P. G., Walker, N. C., Newcombe, J. S., Cross, E. Edwards, M. B.

King's Cadets Who Have Qualified :—Massey, J. P., Belchem, L.

The Kinkead Memorial.

The portrait of the late Flt. Lt. S. M. Kinkead, D.S. D.S.C., D.F.C., R.A.F., which is to be presented to R.A.F. Club as a memorial, will be painted by Mr. Geo Harcourt, R.A., and will be completed by the end of Octob

The Union Jack Club.

An Air Ministry Order states that arrangements have be made by the Union Jack Club for the election to membersh of a limited number of ex-warrant officers, non-commissio officers and men of the R.A.F. with not less than 12 yea service on the Active List, including service on mobilisati Service in the Royal Navy, Army, or Royal Marines may taken into account in computing the 12 years.

Those who desire to become candidates for ex-Service me bership when approaching the end of their term of serv on the active list should apply for particulars to The Con troller, Union Jack Club, 91, Waterloo Road, S.E.1.

THE EDGWARE ACCIDENT.

On Aug. 8 the inquest on the body of Lieut. E. L. D. Moore, R.N., which had been postponed pending the attendance of witnesses, was resumed at Stanmore.

Mr. Charles Walker, Director of the De Havilland Aircraft Co. Ltd., said there had never been a similar accident to one of their machines as the type had high factors of safety.

Lt.-Cdr. Moore, R.N., said that his brother took his Air Ministry "A" Licence in May last year and had made about thirty flights since then.

Mr. Charles Humphries, ground engineer of the London Aeroplane Club, said that the machine had been examined on the morning of the accident and that he had no reason to believe that it was in any way defective.

Mr. V. H. Baker, chief instructor of the Club, said the machine was built to be safe when stunted.

Police Constable Wixon, who saw the accident, testified that the right or starboard plane left the machine in the air. Mr. C. H. Bell and Mr. Donald Stone corroborated this evidence.

The Coroner returned a verdict that Lieut. Moore died from a fractured skull due to the crashing of the aeroplane in consequence of structural failure in the air.

The usual investigation into the accident by the competent authority at the Air Ministry is being, or has been, made and one gathers that it is the intention of the De Havilland Company to publish openly the result of that finding whatever may be the consequences. This is an excellent resolution, for the hushing up of the causes of accidents, as found by the Accidents Branch at the Air Ministry, is bound to cause people to be suspicious of the machine concerned.

When a Service machine breaks in the air there may be good and sufficient reasons for keeping secret the findings of the Accidents Branch. The cause of the accident, or the prevention of a similar accident, may conceivably be a Service secret. But where civil aircraft are concerned only good can be done by publishing whatever the Accidents Branch believes to have been the cause of the accident.

Even though the alleged cause may not be the true cause, the explanation must at any rate suggest some cause which may lead to the prevention of accidents from that cause.

The opinion of those best qualified to judge the probable cause of Lieut. Moore's accident is that the wing itself did not fail owing to undue strain, but that it was actually broken by the breaking of something else in the machine, as for example the bursting of an airscrew or something of that sort.

There has been a rumour at Stag Lane that the machine hit a tree in getting off and that the pilot did not notice the damage. But this is believed to be purely a guess based on the fact that the dead officer was in the habit of flying low for his own amusement, though not in any way which could be called dangerous or reckless.

The late Lieut. Moore was a Fleet Air Arm observer and was not a Service pilot. He had become a pilot purely for his personal gratification. His death is greatly to be deplored for he was precisely the type of man who is needed for the general good of aviation. To his family one off sincere condolences in their great loss.—C. G. G.

A FRENCH FATALITY.

On Aug. 8 the Couzinet monoplane (three Hispano-Su engines) which had been built for an Atlantic attem crashed near Orly on a trial flight and the pilot, M. Drouh and the mechanic, M. Lanet, were killed, and two ot occupants were seriously injured.

The loss of the pilot, M. Maurice Drouhin, is a very hea one for French aviation. To most people outside Fran Drouhin is known only as a Trans-Atlantic flight comp tor who achieved considerable notoriety owing to his fortunate association last summer with Mr. Levine, but France Drouhin had the reputation of being one of the m brilliant all-round pilots, and only his keen desire to se Frenchman first fly the Atlantic from East to West ever no French aeroplane could do it, caused him to "tak chance" with Levine.

Maurice Drouhin learned to fly in 1917 after transferr from the cavalry to military aviation.

On demobilisation he joined the Farman company w whom he served continuously until he joined Levine. an air line pilot on the Paris—London and Paris—Ams dam services of the Farman Company, as a test and recept pilot for all types and sizes of aircraft, and as a competit and record-breaking pilot, Drouhin showed remarkable round qualities.

From October, 1922, to April, 1927, he held the Wor Duration Record and during that period he broke his record twice.

In 1921 he won the *Grand Prix de l'Aéro Club de Fra* in 1924 he won the *Tour de France des Avionettes,* and 1925 he was awarded the Gold Medal of the *Aéro Club France* for his all-round performances. As recently July 13 of this year he, in company with a lady pilot, br the light aeroplane distance record by flying non-stop f Paris to Treptow, on the Baltic coast, on a Caudron m plane.

French attempts on the North Atlantic have been si larly unfortunate. Their pertinacity, although a t to be admired, is deplorable so long as they are to lose pi of the type of Drouhin, whose abilities could have b so better employed.—L. B.

ANOTHER ITALIAN MISFORTUNE.

On Aug. 5 Capt. Ferrarin and Major del Prete arrive Rio de Janiero from Natal, presumably by train.

On Aug. 7 they visited Ponta Galeao and inspecte new Savoia flying-boat intended for the air service betw Rio de Janiero and South Brazil. They expressed a de to test the machine and against the wishes of the authori they went up. Shortly after taking off the machine into the sea.

Capt. Ferrarin was picked up with a damaged jaw general contusions and Major del Prete had both legs f tured and was suffering from shock. The condition of M del Prete is serious, and it is expected that the amputa of both his legs will be necessary.

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W.J.MILES. 1927.

BARNSTORMING TOWARDS THE EAST.

On Jan. 9 Flg. Off. J. S. Newall and Flg. Off. N. Vintcent, D.F.C., both R.A.F. officers on half-pay, accompanied by Mr. W. S. King, engine mechanic, and Mr. W. A. Childs, fitter, rigger and photographer, left Stag Lane Aerodrome on two D.H.9 type biplanes on a flight towards the East.

The object of the expedition, which is being financed by the two officers, is to investigate the possibilities of air transport along the route from England to India, Burma and the Malay States, to carry passengers and to organise meetings at various places *en route*, to demonstrate the possibilities of aerial surveys by taking photographs from the air, to collect meteorological data and information on natural landing grounds, seaplane bases and flying conditions generally.

Their two machines are Belgian-built D.H.9 biplanes which have been specially modified to accommodate three passengers in enclosed cabins. They are also fitted with rubber-in-compression undercarriages, D.H.50-type nose-radiators, and Dunlop motor-car-type tyres in place of the ordinary aeroplane tyres to reduce the risk of punctures.

The expedition is at present in India, and the following narrative received from Mr. Vintcent gives an interesting account of the voyage from Paris to Madura, in southern Madras.

We had a good trip from Paris to Marseilles and on to Pisa, where we stayed the night in the same hotel as patronised by the King and Mussolini. During our stops in Italy we both became expert spaghetti eaters and could twist a fork with any of the Italians themselves. At Naples the aerodrome was too small to get out of with the load we were carrying, so we had to take off and land at a place called Praie D'Aieta, some miles south, and fill up there. We spent one night at this place, and although the aerodrome is good one cannot say the same for the only hotel, where the sheets are literally used for the tablecloths.

From Praie D'Aieta we had a good flight to Malta, which we reached on a Sunday. Newall, of course, was quite at home, because he has spent some time there with the Fleet Air Arm, and he took me round all the low haunts, such as Beppo's Bar, and one or two other places whose names I have forgotten. The C.O. of the station, who had been in 'Iraq while I was out there, very kindly gave us an escort of seaplanes to cover the first thirty miles of the way towards Tripoli.

We had a really beastly day for it, with a strong cross-wind of about thirty miles an hour and low clouds and rain. However, the seaplanes put us on the correct course with their wireless direction-finding, and off we went. The wind increased as we continued, and it took us nearly four hours to do the two hundred-odd miles to Tripoli. Quite long enough, and we all agreed that trans-Atlantic flying would not figure in our list of hobbies.

At Tripoli the Italian officers were very kind, in fact all along the north coast of Africa they helped us all they could. We were very much impressed with the Italian Air Force. They seem to have good, well-kept machines, and their outposts are the best I have seen anywhere. They are built solidly and give the impression of having been designed as a whole and not built up bit by bit.

There are four stations on the coast—Tripoli, Sirte, Benghasi and Tabrouk. The hangars are all stone with rails running out on to a large apron of concrete, and the machines are stowed inside by putting the wheels and t
skid on trolleys and packing the machines nose to t
In this way, of course, it is possible to put in nearly tw
the number of aeroplanes that would be possible if th
were stowed in the ordinary way. The whole camps
surrounded with well-built fortified walls with machine-g
emplacements, and altogether are first-class jobs.

They told us that preparations had been going on for sc
years, and when we arrived they had just started a mo
ment penetrating southwards to occupy territory whi
although marked as Italian on the map, had never be
really taken over. There was a tremendous amount
bustle going on and the Air Force were doing two bo
raids a day in co-operation with the troops to the sou
We were told that the country between the camps was lia
to prove hostile in the event of a forced landing,
although we kept a good look-out as we flew along we s
nothing more ferocious than a few camels and some wand
ing families, unarmed. A pity, because we felt that
would have made such a good story if we could have arri
in Cairo with our machines riddled with bullet-holes.
did, however, get caught in a nasty dust-storm, so that
can truthfully say that we went down, down, and still
Nile, because, of course, the Nile wasn't anywhere near.

At Aboukir we met lots of friends, who behaved in tr
friendly style, in fact we should like to say right at
commencement how much we are indebted to all the
Force stations at which we have called for their very gr
kindness. We stayed in Egypt for some three weeks bef
going on to Palestine.

No civil flying other than the Imperial Airways' servic
allowed in Egypt on account of the Government not hav
decided upon a definite air policy, but there are sun
sinister figures representing powerful foreign governme
who move about darkly and are all awaiting the word
to get their claims staked.

From Cairo we went on to Palestine, where we held
first flying meeting at Jaffa. As we had to go on to H
and Jerusalem to see various people we left the execut
of our organisation to a Russian Jew who spoke five
guages fluently and would, I imagine, have been equally
home in any of the bars along the waterfronts of So
America, China or the Mediterranean. We impressed u
him that it was essential to have a large attendance on
first day in order to make things go with a swing and
that we must have adequate police to control the crow

The meeting was scheduled to start at ten in the morni
and as we flew over at about five minutes to the hour
realised the hidden abilities of our agent. The roads w
black with what appeared at first sight to be troops mar
ing along in fours, but which proved to be masses of sch
children, who had been invited to attend by the
Russian free of charge, whereby he showed his fiend
cunning in realising the attraction of anything free i
country such as Palestine, with the result that over
thousand innocent children were mercilessly driven al
the roads to witness flying at first hand. The fact that t
arrived half dead from fatigue mattered not at all, the cr
was there, so were the mayors and the band.

Police had proved to be somewhat expensive, so
ingenious friend had hired the local fire brigade, who tur
out in uniform and lent an air to the whole proceedin
We flew for three days, and it proved a great success.

IN PALESTINE.—A typical quartette of passengers carried by Messrs. Newall and Vintcent during their three-day flying exhibition at Jaffa.

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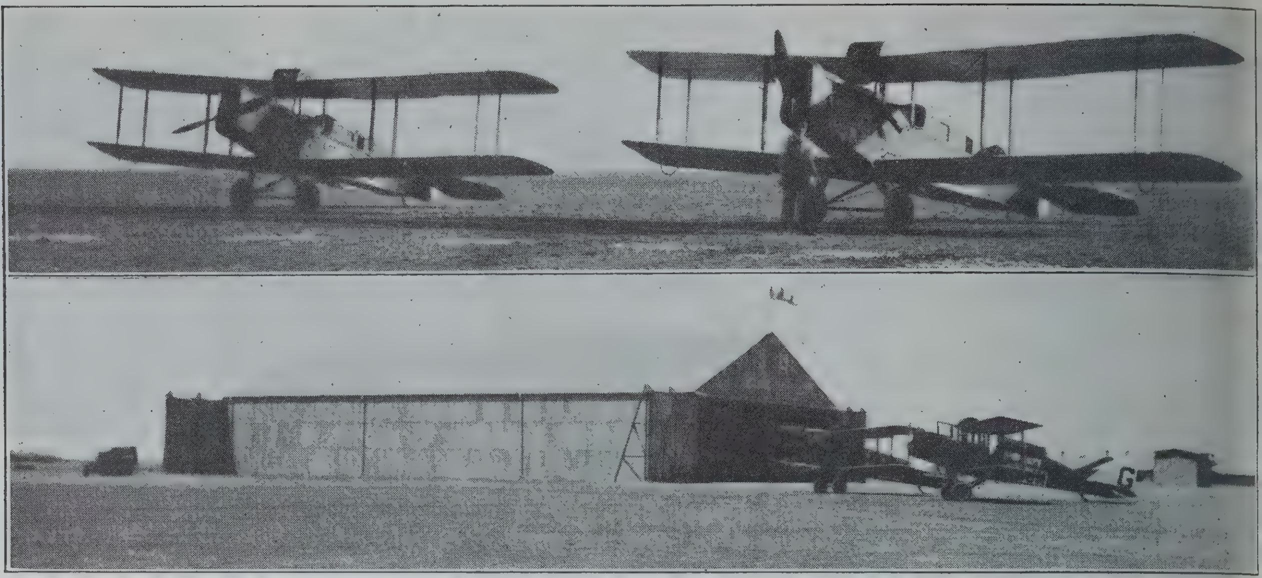


IN 'IRAQ.—Above, the two D.H.9s (Puma engines) at Ziza before taking off for Baghdad, and below, outside the Imperial Airways shed at Baghdad West Aerodrome.

Russian was invaluable in preventing men in voluminous cloaks from smuggling small boys into the machines free of charge and in handing over to the fire brigade those convicted of having thrown samples of their tooth-paste, bootlaces and other commodities by way of advertisement over the town during their flights. These latter were led away presumably to be put out in the best fire brigade style.

From Jaffa we went to Haifa and then to Amman preparatory to leaving for Baghdad.

The aerodrome at Amman is over two thousand feet up, with the prevailing wind down the hill, and as we were carrying the whole of our luggage, spares, tools and cameras it seemed wiser to seek the wide open spaces before attempting to take-off with enough petrol to get to Baghdad. Accordingly we sent King, our engineer, in a car with some of the heavy baggage to Ziza Plain and flew down light in the machines. For our own interest we marked out measured distances along the line of our take-off. Ziza itself is about two thousand feet high, but one can get a practically unlimited run. We needed it, as we took just twelve hundred yards to get off the ground. From there we had an uneventful flight to Baghdad, alighting at "Landing-ground Five" for lunch.

The track is child's play to follow now compared to what it was some years ago when the plough was the only thing to follow. So many cars have been over the route that it looks rather like a road, and although the track itself is overblown with sand in places the car-marks always show up well.

In Baghdad we met many friends, and although the Air Force personnel has greatly changed the civilians remain. During the time I was in 'Iraq there used to exist a very close liaison between Nos. 8 and 30 squadrons, and if one member was to be seen in Baghdad on pleasure-bent the remainder were usually close behind, and it was rather touching to see the way the hotel staffs and the bar-boys remembered one's especial friends and enquired after them. There were many enquiries after Mr. Pope, Mr. French, Mr. Sherlock, Mr. Hawtrey (did they not remember t
long-necked bottle of peach bitters) and a dozen others, a
always without fail they wished to know when the Capta
"Kink" would return. I think there was as much genui
feeling over his death in Baghdad as anywhere else.

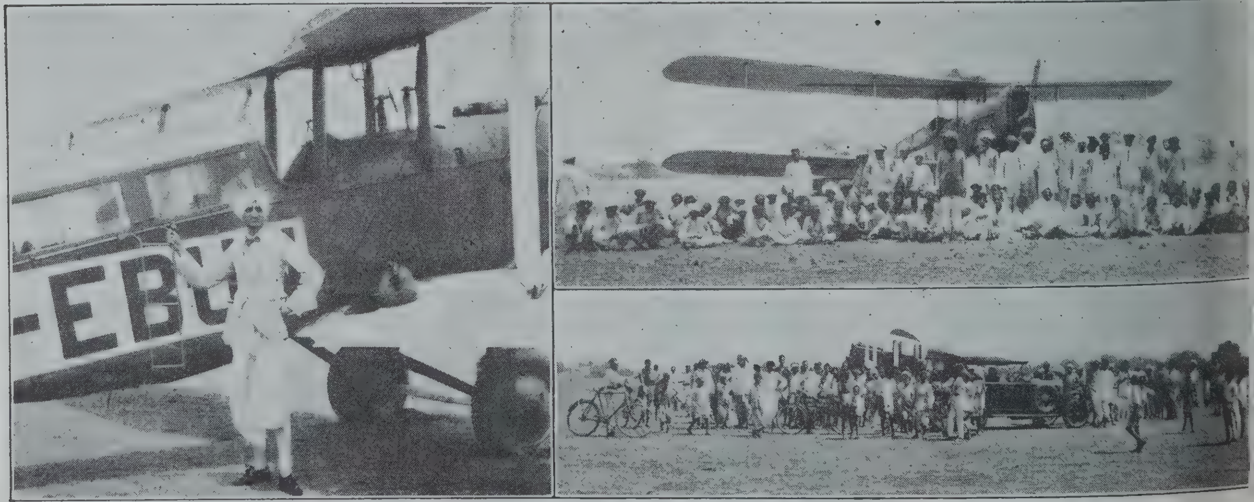
At the risk of boring some it is worthy of mention th
Zia has moved to a new hotel, but retains the same be
rail, and that Satan, the head-waiter of the Carlton, is p
spiring in his boiled shirt as usual, while the Babylon and
Willingdon each have a cabaret and packed houses.

We had a very good time in Baghdad as we were invit
to stay in No. 1 Mess. From there we flew to Busra and
to Koweit, where we found that the war was over a
preparations were being made to return.

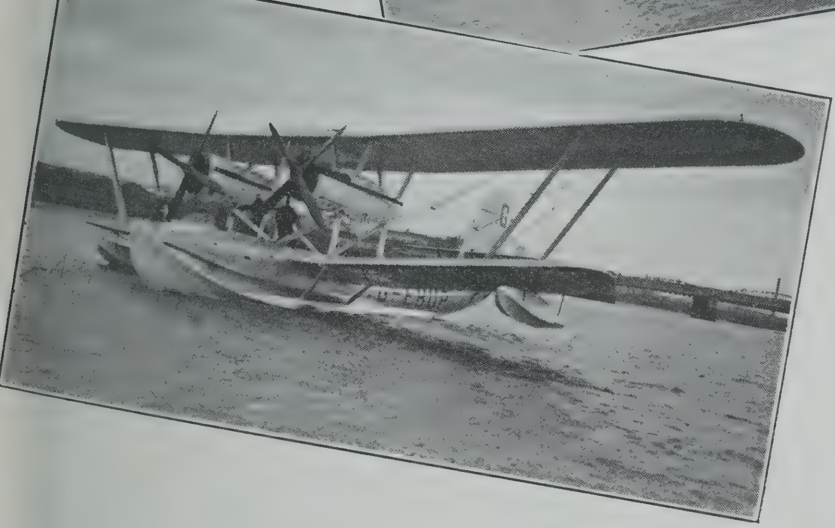
From Koweit we went to Bushire via Busra, where
spent the night. Incidentally, the aerodrome at Bushire
liable to prove treacherous. Either the ground has deter
rated since being turned into an aerodrome, or else
boundary marks were badly placed originally, the res
being that one finds large holes and ruts well inside
marks. In a good light they are easy enough to see, but
anyone creeping in at dusk and landing on what appears
be the edge of the aerodrome they would cause a lot
damage. We were very disappointed to miss the f
Junkers aeroplane to open up the service between Tehe
and Bushire, as we discovered that it had left the day bef
we arrived. There is a dilapidated hangar on the aerodro
at Bushire, but no other facilities.

From there we flew to Bunda Abbas, Jask (which ha
magnificent natural aerodrome), Chabar, and on to Karac
Although the temperature in the Gulf was only about nin
we found that the only way to keep our engines cool
to fly right down on the ground, as the belt of hot
extended up to over 4,000 feet and made us over-heat lo
before we could climb through it. I certainly do not en
anyone who has to operate over that section of the ro
to India.

We spent about a month in Karachi, and while our engi



IN INDIA.—On the left, a typical Indian passenger, and on the right, above, one of the machines at Morvi, and below, a few minutes after landing at Ahmedabad.



"CALCUTTA"
All-metal Air Liner for 15 passengers and crew of three.
(Bristol "Jupiter" Engines.)
Imperial Airways, Ltd

"SINGAPORE"
All-metal Naval Type. Recently returned from Sir Alan Cobham's flight of survey round Africa.
(Rolls-Royce "Condor" Engines.)

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were being looked over we went up to Simla to see the Director of Civil Aviation in India, Colonel Shelmerdine, who gave us some useful information about the weather during the approaching monsoon, so that we were able to make out a programme avoiding the worst of the rain. It is a great pity that there are no hangars in India anywhere south of Karachi, and as the dense rain would very soon reduce a machine to a state of uselessness we were compelled to alter our plans and make for areas where the south-east monsoon is not felt to any great extent. On all the official landing grounds there are two little stone huts for accommodating petrol and a guard, and it would be a great help if these huts were linked with a wall at right angles to the prevailing wind and a small corrugated iron roof just large enough to cover the nose of the machine put on. It would be a small undertaking and would prevent machines becoming soaked with rain as they do at present.

From Karachi we went to Ahmedabad, where we put in a week's flying. The population were wildly enthusiastic, in fact on one occasion flying had to be stopped on account of the number of free fights going on among those wishing to fly. Every time a machine landed there would be a rush, and men would flock round seizing hold of the wings and fuselage and refusing to let go. Ahmedabad is a great mill centre and the aerodrome is quite close to the town.

On my way to Ahmedabad I landed at a place called Morvi, in Morvi State, and was asked to inspect a four-engined Handley Page. It appears that the former ruler had bought it just after the war with the idea of using it to go to Bombay and back on business, but that by the time it had been sent to Karachi, erected and flown to Morvi he no longer felt inclined to fly, and the machine has been lying there unused ever since. Apart from the engines it is by now quite useless. Rather an expensive whim.

From Ahmedabad we went to Bombay, and landed at Juhu Aerodrome. This is a flat piece of ground close to the seashore, and although quite good during the fine weather, it would be much too soft after heavy rain. We could not stay more than a few days in Bombay on account of the approaching monsoon, but we shall return there as soon as the fine weather starts.

From Bombay to Poona we carried two passengers, the sons of a wealthy Parsee. They were most enthusiastic about their flight and gave a very glowing account of it to the papers on their return.

At Poona we lunched, and proceeded to a place called Sholapur, where we stayed the night. Owing to a circus having arrived we could not get in the Government rest-house, so were put up by the local inhabitants. Incidentally, it is the only circus I have ever seen which could boast a parrot that rode a bicycle.

We picked up a casual passenger from Sholapur to Bellary, and then flew on to Madras, which we reached at dusk. Our flying time from Bombay to Madras was 7 hours 45 minutes.

Madras kept us busy for a month with photography, charters and passenger work. From there we went to Bangalore, where after five days' work we gave ourselves a holiday. The climate there is a delightful change from the plains, and we were able to sleep at night with a blanket instead of sweltering under a fan. While there I was taken over a gold mine, and one of the shafts goes down seven thousand feet. Almost incredible.

From Bangalore we flew to Madura, where there is a railway strike and the lines have been torn up. We have volunteered to run a mail service from Madura to Madras, stopping at Trichinopoly and Tanjore *en route;* but we are not optimistic regarding the reply, as never has a truer thing been said than that one cannot hustle the East.

I think that we can safely say that our tour in India so far has been an undoubted success. Everywhere there has been great enthusiasm shown, and people avail themselves of our expedition to use it for photographic work, private charters and passenger flying.

It has been a revelation to most people out here that we can use our machines as they would a motor-car. So far we have been lucky and always run to schedule, a fact which reflects great credit on our engineer, W. S. King. Our greatest handicap is the fact that owing to initial financial reasons we were forced to equip ourselves with machines which, although sound, are of old design and consequently call for a good deal more looking after than would a couple of more modern ones. It is our hope, however, to return them intact to Croydon in the not too distant future.

EDUCATING THE PUBLIC.

Readers of THE AEROPLANE will be interested to know that Lt.-Col. Norman G. Thwaites, who is becoming well known among aeronautical people as the energetic and amiable assistant secretary of the Air League of the British Empire, is the prospective Conservative candidate for the Hillsborough Division of Sheffield. The many friends whom h has made will wish him every success in his candidature He would certainly be a distinct acquisition to the Hous of Commons.

He recently addressed the 1912 Club at Bucklersbury, E.C. on Great Britain's position in aviation. In doing so h made a good point which is not as a rule adequately drive home by speakers on what might be called patriotic aviation. He compared the low cost of aircraft as a defenc with the high cost of other forms of defence, pointing ou that a battleship costs £7,000,000, whereas the largest of ou aircraft cost not more than £20,000, and that for £7,000,00 we could provide 10,000 small high-speed fighting machines more or less of the Tiger-Moth type, at approximately £70 apiece.

Admitting that the Tiger-Moth itself is hardly a fightin machine, there are possibilities about the type. And something bigger and faster could possibly be produced on mas production principles at the suggested price.

Unfortunately, being of the Air League, Colonel Thwaite was more or less obliged to ring in all the old fallaciou arguments about the insignificance of our Air Force compared with other air forces which are twice as big but onl about a quarter as efficient. And he also had to drag i the equally fallacious argument about the enormous mileag of air routes in Germany compared with ours,—which i about as reasonable as comparing the railway mileage c the Isle of Man with that of Great Britain. He did, however, emphasise the fact that we have the best flying me and the best engines. So that may be accounted unto hi for righteousness.

One interesting point he made was that the air leagues c Germany, France, Italy and other countries run into hundreds of thousands of members, whereas our own Air Leagu of the Empire cannot boast anything like such numbers That, of course, is the fault of the way in which the Ai League has been misguided for so many years. If it ha a real live chairman of committee and a live-wire executive as the Navy League had in the days of the late Mr. Rober Yerbergh and the very much alive Mr. Pat Hannon, w might easily have half a million members in the Air League

THE FRIEND SHIP ORGANISATION.

The latest manifestation of aviation appears to be th organised by Mrs. Knowles of Ramshurst Manor, Tonbridg who is the moving spirit in what is known as the Frien Ship Fellowship Organisation, a clumsy but comprehensi title. The central idea of Mrs. Knowles is that of bringin the young people of various nations together. The Organisation owns a yacht in which the winners of competition arranged by the Organisation are given short cruises prizes. The latest idea of Mrs. Knowles is to visit vario schools, to lecture to the children, and to enlist member For the purpose of this tour a Blackburn Bluebird is bein used. This machine was delivered to Mrs. Knowles Ramshurst Manor on Sunday, July 15, where it was give the official blessing of the Department of Civil Aviation b Col. Ivo Edwards acting for Sir Sefton Brancker.

DIAMOND TRANSPORT IN SOUTH AFRICA.

Aircraft are being used in South Africa by diamond buye both for rapid transport to the buying centres and for th transport of the resultant purchases.

On July 18 an aeroplane carrying a load of diamonds forc landed in the Mooresburg district of the Cape Provinc When the local inhabitants gathered round to offer help the were warned off by one of the occupants who levelled a revolver at them. A car was chartered and the journey wa completed to Cape Town by road still under armed protection.

On Aug. 10 a machine which was flying from Kimberle to the Lichtenburg diamond diggings crashed in the dar soon after leaving Kimberley and both occupants were kille The wreckage of the machine was surrounded by banknote to the value of from £3,000 to £4,000.

GLIDER RECORDS.

On Aug. 1 the annual Rhön Gliding Meeting opened the Wasserkuppe. Over sixty gliders were entered and the first four days over 200 flights were made.

On Aug. 6 Herr Krönfeld, an Austrian pilot, remained the air for three hours and reached a height of 1,476 ft.

On Aug. 8 Herr Nehring glided from the Wasserkupp promontory to within a short distance of the town o Eisenach, covering a distance of 45 miles, thus beating th previous record by 13 miles.

On the same day Herr Dittmar reached a height of 2,5 ft. above his starting point.

IF . . . .

If one engine fails, what———?
Most aeroplanes equipped with two engines, or three, would be compelled to make a forced landing in this case.
Forced landing, that means: late arrival, perhaps danger to passengers, pilot and craft.

There is only one three-engined all-metal aeroplane in the world which maintains straight level flight (under full load) with only two engines running:

THE "ROHRBACH ROLAND."

THE A.B.C. HORNET ENGINE.

A.B.C. Motors Ltd., of Walton-on-Thames have just produced an engine for light aeroplanes of an interesting type. This is called the Hornet, and is a four-cylinder air-cooled double-opposed horizontal of 75 h.p. normal rating.

The makers claim that this arrangement of cylinders gives a smaller frontal area than is possible in a radial of equal power, that it gives better cooling than is given when all four cylinders are in line, and that as the cylinders project on each side of the fuselage, the view forward is not obstructed, as with other types of engine—a point of considerable importance in the light class of aeroplanes.

Another and quite important point is that this arrangement of cylinders gives a short stiff crankshaft and crankcase, both of which go to reduce the all-up weight of the engine. As a consequence the makers claim that the Hornet is some 50 lbs. lighter than any four-cylinder in-line engine as yet available for light aeroplanes.

The first experimental Hornet engine was designed and produced in the latter part of last year, and was given some 80 hours of development testing at the makers' works. In this period it developed no defect other than the most minor type of teething troubles. It was then stripped, all working parts measured up, after which it was re-assembled and submitted to the standard Air Ministry type-test, which it passed at the first attempt.

On stripping and re-measuring the amount of wear discoverable was ridiculously small. The maximum wear on the connecting-rod big-ends was .0003 inch, the top of the cylinder bores had worn from .00025 to .00075 inch, and the centre of the bores showed a maximum wear of .00025 inch.

The Hornet is of simple and sturdy construction, following in general the design of the well-known two-cylinder Scorpion,—so much so that cylinder-head units and a number of other items are interchangeable with those of the earlier engine. The Scorpion has not come into very extensive use in this country, but many of them have been produced and sold to countries where the light single-seater type of machine finds greater favour, so that this interchangeability of parts is a real advantage from the manufacturing and stock point of view.

SPECIFICATION.

CYLINDERS.—102 m/m. (4.015 in.) bore, 124.5 m/m. (4.8 in. stroke). Steel barrels with integral fins, with cast-iron heads bolted on Two inclined overhead valves per cylinder. Inlet ports face down Exhaust ports upwards and forwards.

PISTONS.—Aluminium alloy castings, with floating gudgeon-pins.

CONNECTING RODS.—Unsplit-ring type big-ends, case-hardened, on bearing surfaces with a split floating bush between big-end and crankpin. The big-ends are threaded over the crank throw, and the floating bushes are then slipped into place one half at a time. These bushes have stepped joints and are locked together by screws passing through the steps parallel to the crank-pin axis.

CRANKSHAFT.—Two-throw 180° type, heat-treated and case-hardened on crank-pins and over central journal. Runs on two roller bearings, in front, one plain bronze bearing between throws and one roller bearing at rear.

CRANKCASE.—In three sections, spigotted and bolted together in planes of cylinder centre-lines. Four long bolts passing right through crankcase project at rear end and serve for mounting. An induction chamber is cast into the bottom of the central section of crankcase, to heat mixture and help cool the oil.

VALVE GEAR.—Overhead valves are operated through push-rods and rockers. There are apparently two independent camshafts, one carried in the top of the rear section of crankcase for the rear pair of cylinders, and one in the bottom of the front section for the front cylinders.

CARBURATION.—One Zenith Duplex 36 m/m. carburettor is attached to the base of the crankcase and delivers mixture to the induction chamber cast therein. Two horizontal pipes run out on each side and join up with a pair of U pipes which run to the inlet ports.

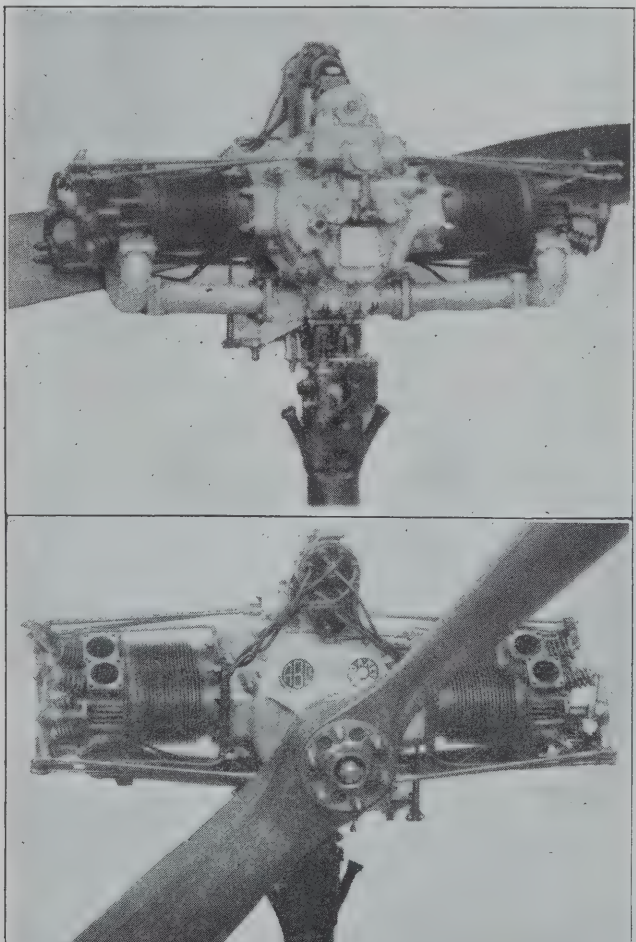
IGNITION.—One Watford double-spark magneto mounted on top of crankcase fires two plugs in each cylinder. Impulse starter coupling on magneto.

LUBRICATION.—Normal dry-sump system. Oil pumps are mounted as a unit at the rear of the crankcase.

AUXILIARY GEARS.—Provision for fitting an engine-driven petrol-pump. Normal tachometer drive attached to oil-pump unit.

WEIGHT.—225 lbs. (102 kg.).

PERFORMANCE.—Normal output 75 b.h.p. at 1,875 r.p.m. Minimum 8 b.h.p. at 2,075 r.p.m. Fuel consumption 0.52 pints (0.295 litres) per h.p. hour.



Front and back views of the A.B.C. Hornet engine.

BRITAIN LEADS, AMERICA FOLLOWS—AND GETS AHEAD.

It appears from the extract hereafter reproduced from *Aviation* that the American Air Services have decided to follow the British example and institute a Secret List.

It will be noticed that the American announcement suggests rules of the vague and nebulous type which in this country would leave endless loopholes for officious delay. America, however is a business-like country and such discretion as the rules allow will doubtless be interpreted as permitting the maximum of publicity for American Industry.

The announcement made jointly by the U.S. War and Navy Departments is as follows :—

> This policy should be subject to exception when desirable in any particular case and each case should be determined upon its merits. Decisions will be made by the War and Navy Departments in specific cases.
>
> Release for foreign sale, or public description, will be withheld indefinitely on equipment containing features so novel as to constitute new inventions of purely military use.
>
> Designs including such features of marked novelty, either in general layout or details of construction, which have prospect of commercial usefulness, may be sold outside the services or abroad about one year, generally, after going into regular production. The exact time of such release will depend upon the importance of the novel features concerned and will take into consideration the practicability of maintaining secrecy of the machine which is to be used from a flying field open to the public. Due consideration should also be given to the magnitude of the potential demand for the commercial product.
>
> Release will, in general, be withheld for approximately one year after going into production in the case of airplanes of purely military types, without prospective commercial value, whose performance or flying qualities are of such special interest that their early test by pilots outside the American services may be considered unwise.
>
> Airplanes, engines and equipment which contain no strikingly novel feature, but only efficient assembly of well-known elements, may be permitted foreign sale at an early date. Such permission may follow immediately after the completion of an experimental order and its test by either service. Such sale of any service type abroad should be made without military equipment installed if such equipment, or its mounting, contains any important feature of novelty.
>
> No negotiations for the sale abroad of aircraft, power plants, or aeronautical accessories, which have been developed primarily for or with the assistance of direct encouragement of the War or Navy Departments, or whose usefulness is primarily or exclusively military, should be initiated without the permission of the Department interested. Similar permission should be required prior to any public exhibition or the publication of any description of such items.

AVIANS FOR AMERICA.

When the White Star liner *Baltic* recently left Liverpool for the States she took aboard three Avro Avians (Cirrus engines). One of them was consigned to Miss Amelia Earhart, c/o G. Putnam Ltd. Miss Earhart may possibly, at this date, be remembered as the young woman who was a passenger in the three-engined Fokker seaplane piloted by Mr. William Stultz from Newfoundland to Wales some few weeks ago,—this being the first time that a float seaplane had flown the Atlantic.

What was much more interesting about the shipment was

Lieutenant Murdoch's Record Flight to the Cape

on

GOLDEN SHELL OIL

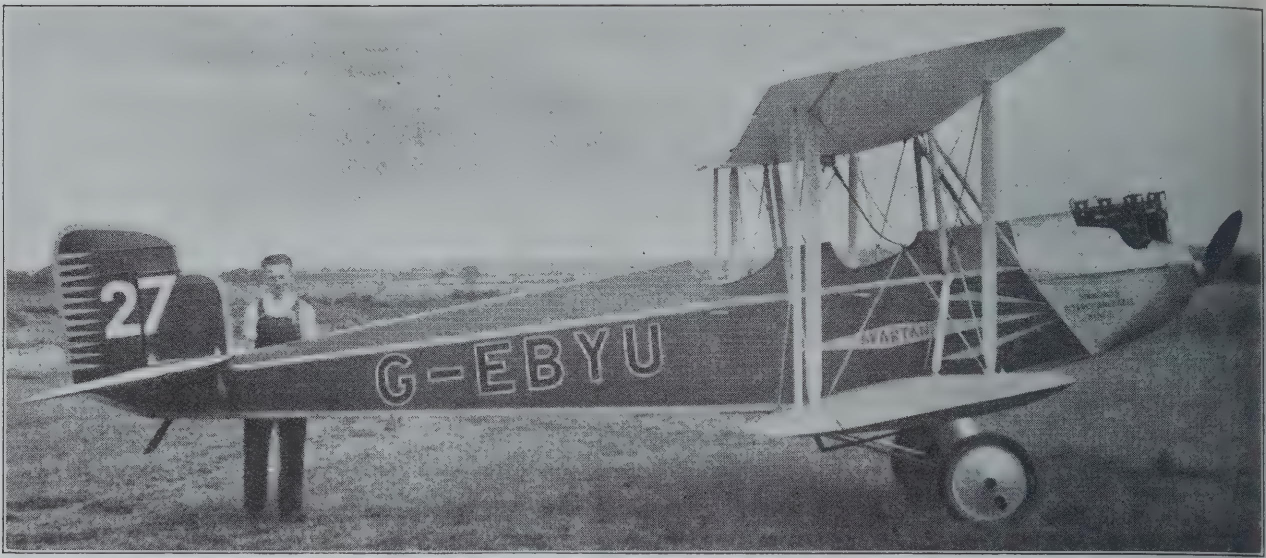
and

STRAIGHT SHELL PETROL

Lieutenant Murdoch, flying an Avro "Avian" fitted with a Mark II Cirrus engine, flew from London to the Cape in the record time of 13 days—beating all previous flights by 15 days.

Throughout the flight he used ordinary Golden Shell Oil—the same as is obtainable everywhere from sealed tank shelters—and straight Shell Petrol—unmixed with "dope" or any other fuel.

Thus another record was created on the invincible combination — SHELL OIL and SHELL PETROL.



THE SIMMONDS SPARTAN.—A side view of the latest light aeroplane to be fitted with the Cirrus engine. A machine of this type will be flying on Aug. 16 at the inauguration of the Swanage aerodrome.

the fact that the other two Avians were consigned to Air Associates, Inc., of New York City, an agent of A. V. Roe and Co. Ltd. in the United States, who have placed a regular contract for two Avians a week. This shows real progress in foreign business.

IRISH CIVIL AVIATION.

An association for the development of civil aviation in the Irish Free State was established on Aug. 9. The promoters hope to hasten the establishment of air services between Dublin and Cork, Limerick and Galway.

On Aug. 10 two machines carried passengers free of charge for ten-minute flights in Phœnix Park, Dublin. The object of this piece of propaganda was to examine the possible public interest in the formation of a Dublin Light Aeroplane Club. Although the announcement was only made on the evening of Aug. 9 over one hundred applications were received the following morning. In consequence it has been decided to form a Flying Club.

An effort will be made to hold an Aerial Pageant in Phœnix Park next month.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending Aug. 12.

Flying Time 45 hr. 10 min. *Instruction* 30 hr. 55 min. *Soloists* 14 hr. 15 min. *Instruction.*—Mrs. Davis, Miss Johnson, Messrs. G. R. Mack, W. Hart, G. R. S. Charles, J. C. V. K. Watson, H. Bergel, R. F. G. Adams, J. Harrison, R. M. Doidge, S. G. Blythe, W. W. Briscoe, J. Chalmers, R. K. Koratkar, Captain R. S. Rattray. *Soloists.*—Messrs. J. J. Hofer, E. H. Thierry, P. A. Wills, C. Campbell, J. C. V. K. Watson, H. M. Samuelson, W. L. M. O'Connor, B. Davis, W. Roche-Kelly, R. Sanders-Clark, C. E. Murrell, E. A. Lingard, Major K. M. Beaumont.

E. H. Thierry passed his tests for his Aviator's Certificate on Aug. 5.

Staff Holidays.—The Club is closed down from Aug. 14 to 25, inclusive.

Monday Closing.—Members are informed that in future there will be no flying at the Club on Mondays.

Mr. F. R. Matthews, one of the Club Instructors, is getting married this month. It has been suggested that members might wish to subscribe to a wedding present. Subscriptions, limited to 10s., may be sent to the Secretary, 3, Clifford Street, London, W.1.

The Lancashire Aero Club.

[Sec.: Woodford Aerodrome, near Stockport.]

Report for week ending Aug. 4.

Flying Time 32 hr. 15 min. *Instruction* 16 hr. 45 min. *Soloists* 10 hr. *Passengers* 3 hr. 55 min. *Tests* 1 hr. 35 min. *Instruction.*—*With Mr. Baker*—Miss Baerlein, Miss Emery, Miss Hill, Messrs. Slack, Weale, Kay, Greenhalgh, Ashworth, Stross, Cundiff, Cheyne, Garner, Eckersley, Allott, Faulkner. *With Mr. Cantrill*—Miss Baerlein, Miss Emery, Messrs. Greenhalgh, Faulkner, Greg, Ashworth, Taylor, W. Whitehouse, Gort, Eckersley, Goss, Kay, Serck, Lacayo, Mason, Cundiff, Barlow, Stern. *With Mr. Scholes*—Messrs. Nuttall, Caldecott, Elwell, Taylor, W. Ashworth, Serck, Barlow, Davies, D. E Cundiff, Faulkner, Cheyne, Williamson, Davies, R. G., Leeming *Soloists (under instruction).*—Messrs. Riley, Sellers, Garner, Harrison *Pilots.*—Messrs. Meads, Caldecott, Crosthwaite, Lacayo, Mills, Fallor Agar, Gort, Chapman, Elwell, Gerrard, Gattrill, Nelson, Michelsor Leeming. *Passengers.*—16.

The chief event of the week has been the departure of Mr. Bake the Aerodrome Manager, who has gone to the London Club. M Baker has been extremely popular and efficient and his loss wi be felt by all those who regularly attend the aerodrome. Th Annual General Meeting was held on July 31, and the opportunit was taken of making Mr. Baker a life-honorary member of th Club.

Report for week ending Aug. 11.

Flying Time 31 hr. 30 min. *Instruction* 13 hr. 25 min. *Soloists* hr. 40 min. *Passengers* 6 hr. 15 min. *Tests* 1 hr. 10 min. *Instruction.*—*With Mr. Cantrill.* Messrs. R. G. Davies, Williamson, D. Davies, Cundiff, Goss, Lister, Faulkner, Butt, Greg, Lacayo, Mill D. Nelson, Hartley, Eckersley, Hall, Greenhalgh, Barlow, Serck Whitehouse, Kay, Ashworth, Miss Emery. *With Mr. Scholes*—Messr Cheyne, Stern, Nuttall. *Soloists (under instruction).*—Messrs. Gor Serck, Riley, Cundiff, Tweedale. *Pilots.*—Messrs. Chapman, Hard Leeming, Gattrill, Lacayo, Butt, Hall, Nelson, Agar, Mills, Harrison Meads. *Passengers.*—21.

Messrs. Serck and Cundiff both did very successful first solos.

The Aerodrome is closed for Staff Holidays until Aug. 25.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending Aug. 5.

Flying Time 33 hr. 5 min. *Instruction* 4 hr. 5 mi *"A" Pilots* 16 hr. 40 min. *Soloists* 1 hr. 25 min. *Passengers* 9 hr. 45 min. *Tests* 1 hr. 10 min. *Instruction.*—*Wi Mr. J. D. Parkinson*—Messrs. Hayton, Lawson, Hall, Kenderic Dickinson, Middleton, Stevenson. *"A" Pilots.*—Mrs. Heslop, Messr Irving, Phillips, C. Thompson, R. N. Thompson, H. Ellis, W. Ellis, Turnbull, De Pledge, Runciman, Horn, Stevenson, Heppel Wilson, Dr. Dixon, Dr. Alderson. *Soloists.*—Mr. Moore. *Passengers.*—12.

On Thursday last an entertaining hour was spent taking in the air five young ladies in connection with the Air League Schola ship. Out of this number two have been selected to undergo i struction, and they will begin this week.

On Sunday Mr. Wallace on his Moth PM called on his way Renfrew.

Our successes at the Flying Meetings this year has resulted in th Club being awarded the S.B.A.C. Trophy.

Report for week ending Aug. 12.

Flying Time 24 hr. *Instruction* 6 hr. 40 min. *"A" Pilots* 12 h 5 min. *Soloists* 55 min. *Passengers* 4 hr. 10 min. *Tests* 10 mi *Instruction.*—*With Mr. J. D. Parkinson*—Miss Yendall, Messrs. Ellis, I. Thompson, F. Hall, W. H. Hall, L. Middleton, Dodd Walker, R. G. Lawson, Griffiths. *"A" Pilots.*—Mrs. Heslop, Thompson, Dr. Dixon, Dr. Alderson, Turnbull, H. Ellis, W. B. Elli R. N. Thompson, Stewart, De Pledge. *Soloists.*—Messrs. Moore an Hall.

Our visitors this week included Miss Spooner and Mr. Wallace c Moths.

The forthcoming visit of the Autogiro is causing great comme and we hope that the weather will improve sufficiently to allo

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its safe arrival, as high winds during the past week have seriously interfered with flying.

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Aug. 11.

Flying Time 26 hr. 25 min. *Instruction* 11 hr. 35 min. *Soloists* 12 hr. *Passengers* 2 hr. 50 min. *Instruction.—With Mr. Beck*—Miss Ellison, Messrs. Watson, Dujardin, Lloyd, Parks, Sobey, Gill, H. Crowther, M. B. Lax, Gibson, Collins, Senior, Ostler, G. Thompson. *"A" Pilots.*—Messrs. Thomson, Clayton, Ambler, Ellison, Wood, Birch, A. Crowther, H. Crowther, Humpheries, R. K. Lax, Ostler. *Passengers.*—15.

This week we have been handicapped by only having SV serviceable and by bad weather on about three days.

We have been promised a visit by the Autogiro on Wednesday next and no doubt many of our budding private owners will rush down to view the machine which can be kept and flown from one's back garden.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending Aug. 12.

Flying Time 35 hr. 35 min. *Instruction.—With Mr. Young*—Mrs. H. J. Cator, Messrs. C. Land, F. Rinder, E. Evans, C. Ransome, H. Malcolm Smith, A. Cooper, C. Bougret, D. Corsellis, A. J. Richardson, A. Kirkby, C. E. Harvey. *Soloists.*—Messrs. T. Image, A. G. Lofty, H. Cator, G. Barker, A. G. Marshall, C. C. White, E. Varden Smith, F. Gough, R. Moore, E. Lambert, N. Brett, R. T. Harmer, P. D. Oliver, W. A. Ramsay. *Passengers.*—33.

The outstanding feature this week was the visit and demonstration of the Autogiro. Certainly this aircraft appears to have great possibilities and although the layman's dreams of vertical ascent are still a long way off, this machine seems to have mastered the art of vertical descent without hurting itself. Several of our members were lucky enough to be drawn from the "hat" for demonstration flights in this "windmill of the air" and all thoroughly enjoyed it. The first to go up was Mrs. Cator, who is making such excellent progress with her instruction here. This curious machine sits down on the ground in just the same way a cockerel arrives off his perch at the first crack of dawn.

We are pleased to report our membership still continues to increase and the flying membership is now getting considerable.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. F. G. Crawford, Filton Aerodrome, Bristol.]

Report for week ending Aug. 11.

Flying Time 43 hr. 25 min. *Instruction.—Dual* 20 hr. 5 min. *Solo* 5 hr. 20 min. *Licensed Pilots* 7 hr. 35 min. *Passengers*—22 *flights* 7 hr. 55 min. *Instruction.—With Mr. Travers*—Miss Miles, Messrs. Allinson, Greenhill, Davies, Amory, Singh, Neale, Peters, Lynas, Hibbert, Rodgers, R. Clarke, T. H. Clarke, Putnam. *With Mr. Tratman*—Messrs. Lynas, Amory, Allinson, Heaven, Singh. *With Mr. Culverwell*—Messrs. Allinson, Amory, Neale, Singh, Lynas, Peters T. H. Clarke, Rodgers.

Mr. Amory made his first solo flight this week.

On Monday Mr. Travers, with Mr. Lynas as passenger, flew t Tangmere, accompanied by Mr. Keith-Jopp in another machine. M Travers and Mr. Keith-Jopp went on to Lympne and returned in th evening, having picked up Mr. Lynas at Tangmere.

Mr. Downes-Shaw flew back from Stag Lane on Saturday in hi private Moth G-EBST which has been repaired after its mishap Blackpool.

The Cinque Ports Flying Club.

[Sec.: R. Dallas Brett, 114, High Street, Hythe.]

Report for week ending Aug. 4.

Flying Time 18 hr. 50 min. *Test Flights* 60 min. *Passengers.*— *Instruction.—With Mr. Clarke*—Mr. Walsh, Mr. Skinner, M Crowther, Mr. Swinnard, Mr. Read, Miss Moffat, Capt. G. E. Tool *Soloist.*—Mr. Crowther. *"A" Pilot.*—Mr. Edgson Wright.

During this week the Club set up a record which will take a l of beating. Mr. Crowther of Eastbourne wished to learn to fly quickly as possible before sailing for Kenya. He joined the Cl on July 27 and began his instruction on that day. He was unab to fly on the Saturday and Sunday, but resumed instruction on th Monday, and on Tuesday, July 31, he flew solo after only 4 hr. min. dual instruction. On the next two days he put in 3 hr. 30 mi solo flying and a further half-hour's dual, and on Friday, Aug. 3, e actly a week from the time that he started, he passed his tests f his "A" licence, in very bad and gusty weather, putting up a mo excellent show. Mr. Crowther had had no previous experience flying, and his performance should convince the sceptics that flyi is not so difficult as it is made out to be. We suggest that mo people might spend a fortnight of their holidays on learning to f with advantage to themselves.

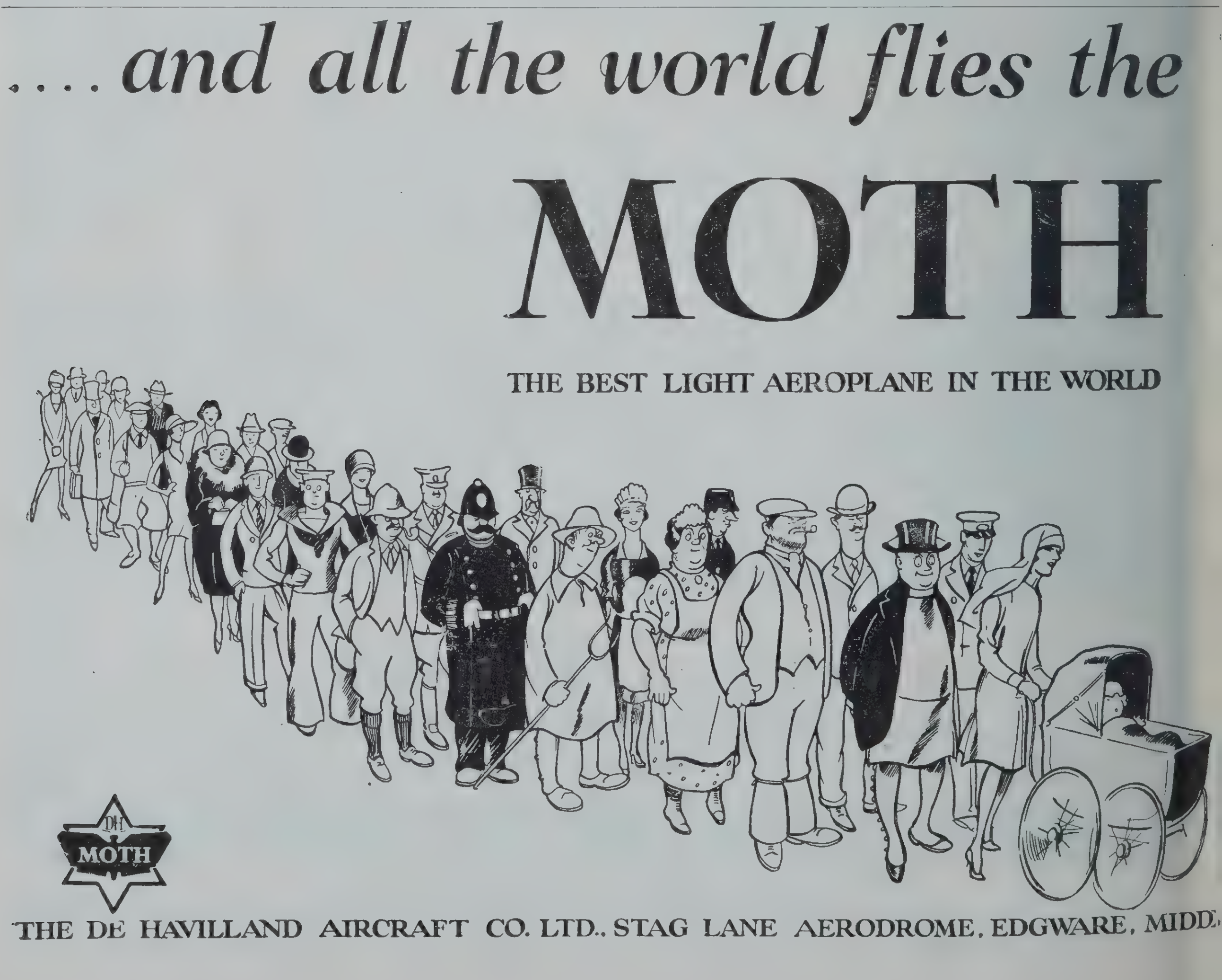
The Aerodrome is now very busy with the Auxiliary Squadro in camp there, and crowds of people have been lining the roads watch the flying.

Report for week ending Aug. 11.

Flying Time 19 hr. 30 min. *Test Flights* 45 min. *Passengers* *Instruction.—With Mr. Clarke*—Mr. Read, Mr. Walsh, Mr. Skinn Mr. R. Dallas Brett, Mr. Gunner, Mr. Evernden, Mr. Parks, M Smith, Mr. Swinnard, Mr. W. Smith, Mr. Crowther, Mr. Boys. *"A Pilots.*—Mr. Wright, Mr. R. Dallas Brett, Mr. Crowther.

With twelve members under instruction we put in a very bu week totalling 19 hr. 30 min. flying with our one machine. M Crowther, who last week took his "A" License after only six da flying instruction, managed to get in 30 min. dual and 3 hr. min. solo during this week before sailing for Kenya. His departu is a distinct loss to the Club, but no doubt the Aero Club East Africa will benefit from his activities. We wish him the b of luck.

On Saturday, Aug. 11, we had a very welcome visit from De Hav lands' represented by Messrs. Malcolm, Crook, White and a frien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and from A.D.C., in the person of Mr. Neville Stack, whose well-known white and red Moth was fitted with the new Cirrus Mark III engine.

The Nottingham Aero Club.

[Sec.: Cecil R. Sands, Imperial Buildings, Victoria Street, Nottingham.]

Report for week ending Aug. 10.

Flying Time 39 hr. 30 min. *Instruction* 11 hr. 5 min. *"A" Pilots* 6 hr. *Soloists (under instruction)* 15 hr. 10 min. *Passengers* 5 hr. 50 min. *Tests* 1 hr. 25 min. *Instruction.—With Mr. Martin*—Miss Bostock, Messrs. Calladine, Bradley, Stevenson, Taylor, Thorpe, Shipside, and Glenn. *"A" Pilots.*—Messrs. Blake, Paul, Pilgrim, Hallam, Cox. *Soloists (under instruction).*—Messrs. Taylor, Bradley, Shipside, Hatton, Glenn, Selvey, and Chawla. *Passengers.*—6.

Mr. Chawla was launched on his first solo on Monday last and put up a real good show. He hails from India, where he is returning as soon as he gets his "A" Ticket. We also have our well-known friend—Mr. L. R. Tait-Cox—amongst us, with his sky-writing S.E.5a, but the weather is none too good. The Autogiro arrived here on Saturday, piloted by Mr. Rawson, who gave a very interesting exhibition before a good number of members and the Public. Mr. Martin had a flight in same and flew it. He said he was greatly impressed with its performance.

The Liverpool and District Aero Club.

[Sec.: A. L. Nickerson, Hooton Park Aerodrome, Hooton.]

Report for week ending Aug. 5.

Flying Time 36 hr. 40 min. *Instruction* 27 hr. 35 min. *Soloists* 9 hr. 5 min. *"A" Pilots.*—Messrs. Crosthwaite, Davison, Leete, Ward. *Instruction.—With Lieut. Bentley*—Messrs. Andrews, Irving, McClure, Francis, Naylor, Edgar, Mitchell, Barber, Birtill, Spark, Reville, Barker, Thornton, Miss Hughes, Miss Oakshott. *With Mr. Allen*—Messrs. Keniston, Benson, E. H. Williamson, Thornton, Barnes, McGeagh, Mrs. Naylor. *Soloists.*—Messrs. Benson, McClure. *Passengers.*—4.

The winner of our height judging competition, Mr. Viner, called at the Aerodrome on Wednesday evening for his flight, and was given his "Baptême de l'air" by Lieut. Bentley.

The Cornwall Aviation's Banner-Flying Avro paid us a visit, also Mr. Short, on the Short Mussel, fitted with undercarriage, a very interesting machine. Unfortunately, Mr. Short called on a Monday, our "off" day, so few Members had an opportunity of examining his machine.

The Swanage and Isle of Purbeck Light Aeroplane Club.

On Aug. 16 at 15.00 hrs. the Swanage Aerodrome at Worth Matravers will be opened with a flying display. There will be exhibition flying by a pilot of world-famed reputation, and a Simmonds Spartan biplane (A.D.C. Cirrus engine) with an instructor will be available for the use of members throughout the day.

A welcome is extended to light aeroplanes from neighbouring clubs, to private owners, and, in fact, to anyone who cares to fly down to Swanage to help to give the new aerodrome a successful initiation.

The Victoria Aero Club.

[Sec.: Sydney Pickles, 208, Union Building, Victoria, B.C.]

Report for week ending July 14.

Flying Time 11 hr. 20 min. *Instruction.—With Mr. Pickles*—Mes
F. F. Cooper, A. Nash, R. Hedley, L. S. Macleod, M. M. McGiv
C. Aitken, E. Hanbury, P. Foster, G. Burns, F. Gilbert, E. Hop
Soloist.—Mr. A. W. Carter. *Passengers.*—4.

On Saturday Mr. Pickles took the Club's Moth up to 15,000 feet
43 min. The machine was still climbing, but the pilot did not
tinue as he was not properly attired for the freezing temperature.
Monday the first damage occurred to the Club's machine. Thro
an oversight while running the engine the machine fell forward on
nose and damaged the propeller. Fortunately a spare propeller
obtained from Dominion Airways Ltd. and the Club was able to res
flying activities the next day.

FLYING SCHOOL.

The Henderson Flying School.

[Man. Director: Lt.-Col. Henderson, Brooklands Aerodrome, Byfl

Report for week ending Aug. 2.

Flying Time 54 hr. 20 min. *Instruction.—With Lt.-Col. G. L.
Henderson*—Messrs. Lewis, DuCane, Moursi, Guiness, Elton, Au
Matos, Billimoria, Daniels, Groner, Daniell, Stewart, Robertson,
Leigh, Miss Chapman, Mrs. Monkton, Dr. Forsyth, Dr. Taylor.
Mr. H. D. Davis—Messrs. Richardson, Hamilton, Oldmeadow, Da
Groner, Lewis, Hill, Miss Wellby, Mrs. Scott, Mrs. Monkton. *Solois*
Messrs. Stewart, Oliver, Swan, Davies, Daniell, Hill, Guiness.

Messrs. Groner, Davies, Guiness and Daniels completed their
solos during the week.

Report for week ending Aug. 9.

Flying Time 36 hr. 35 min. *Instruction.—With Lt.-Col. G. L
Henderson*—Messrs. Moursi, Robertson, Matos, Lewis, Daniels, DuC
Leigh, Stewart. *With Mr. H. D. Davis*—Messrs. Robertson, Le
Matos, Daniels, Austin, Dr. Taylor, Davies, Oldmeadow, Billim
Hamilton, Lee, Mrs. Monkton, Miss Kidston. *Soloists.*—Me
Guiness, Robertson, Daniels, Lee, Matos, Moursi, DuCane, Davies.

Messrs. Matos, Robertson and Moursi were launched on their
solos. Mr. T. T. Davies has now passed all his flying tests for
R.A.C. Licence.

Mr. Robertson has made remarkable progress; he was sent
after four clear flying days at the school and is now ready to do
R.A.C. tests. Mr. Maddocks has taken delivery of his S.E.5 and s
most of Sunday in the air getting used to it.

Lt.-Col. Henderson has taught Messrs. Anderson and Allen, our
chief Ground Engineers on the Maintenance Staff, to fly. Mr. A
has completed all tests for his "B" Licence, and Mr. Anderson is
on the way to do the same. This is the outcome of a definite p
laid down by the firm that all Ground Engineers must also be Pil

Considerable utility arises from the fact that all Ground Engi
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the machines are away and could test them after carrying out rig
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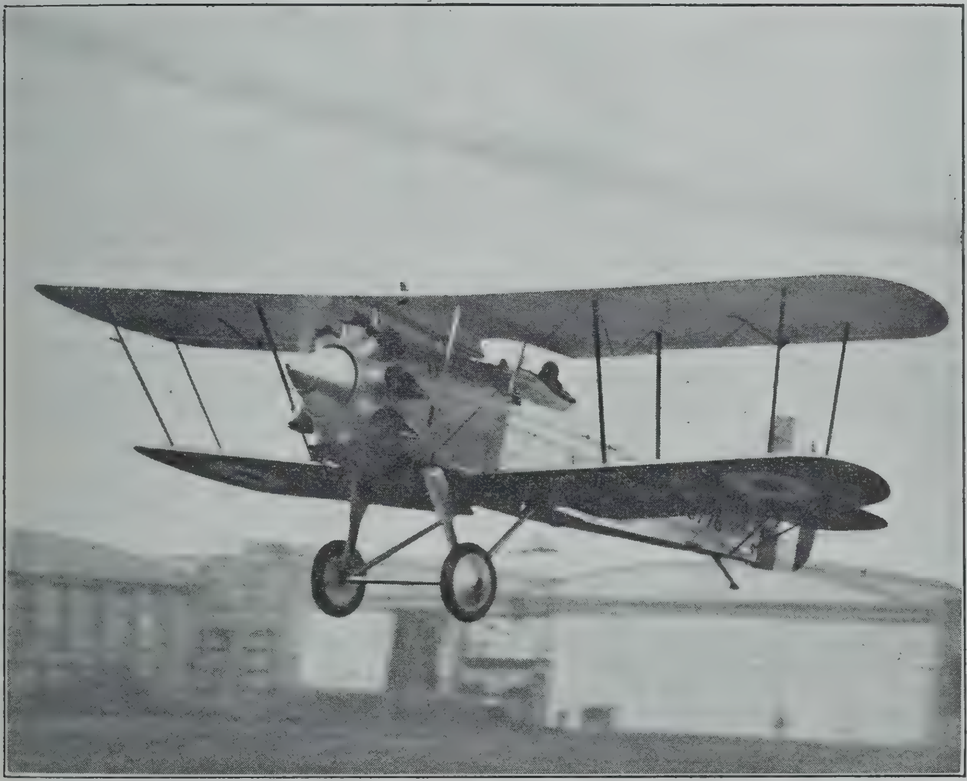

"Aeroplane" Photograph.

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 15; Monday, 36; Tuesday, 54; Wednesday, 43; Thursday, 39; Friday, 39; Saturday, 43.

IMPERIAL AIRWAYS LTD. :
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 96, passengers 985, freight 30 tons.

AIR UNION :
Paris—London and return: Machines 62, passengers 357, freight 10 tons.

K.L.M. :
Amsterdam—Rotterdam—London and return: Machines 34, passengers 236, freight 4 tons.

SABENA :
Brussels—London and return: Machines 16, passengers 123, freight 1½ tons.

DEUTSCHE LUFTHANSA A.G. :
Amsterdam—London and return: Machines 25, passengers 68, freight 4 tons.

PRIVATE :
Machines 36, passengers 19.

Total number of trips by British Machines, 132, carrying 1,006 passengers. Foreign Machines, 139, carrying 856 passengers.

COMPARATIVE FIGURES.

Week ending Aug. 11 :
Machines, 269; Passengers, 1,790; Crews, 494; Total personnel, 2,284.
Corresponding week, 1927 :
Machines, 183; Passengers, 1,068; Crews, 348; Total personnel, 1,416.
Corresponding week 1926 :
Machines, 183; Passengers, 1,313; Crews, 226; Total personnel, 1,539.
Corresponding week, 1925 :
Machines, 176; Passengers, 1,011; Crews, 248; Total personnel, 1,259.
Corresponding week 1924 :
Machines, 176; Passengers, 904; Crews, 223; Total personnel, 1,127.
Corresponding week, 1923 :
Machines, 144; Passengers, 724; Crews, 231; Total personnel, 955.
Corresponding week, 1922 :
Machines, 176; Passengers, 642; Crews, 303; Total personnel, 945.
Corresponding week, 1921 :
Machines, 114; Passengers, 437; Crews, 140; Total personnel, 577.
Corresponding week, 1920 :
Machines, 123; Passengers, 262; Crews, 154; Total personnel, 416.

Note.—In addition to the Croydon traffic shown above, K.L.M. have during the past week run 14 machines, carrying 6 tons of newspapers between Lympne and Ostend.

Croydon Notes.

The heavy rain of the Saturday before Bank Holiday spoilt what should have been a record week of traffic, and it did this purely by delaying the early morning departures of Imperial Airways from and to Paris. Early clouds were right down on the ground over S.E. England, and it was impossible to get through in either direction until a little before noon.

Just because the early morning machines were held up the whole traffic arrangements for the day were upset, for machines which should have been at Croydon available for a return trip to Paris were still on the way and could not be used on the intended schedule. If there were no such thing as night the effect would have been merely that traffic would have been roughly three hours late all through. Actually the result was that about one-quarter of a day's flying was lost.

It almost looks as though whatever it is that controls our weather chose that particular day to display its ill-humour of malice aforethought.

This same Saturday provided an opportunity for giving G-EBIX's new wind-screen a wet-weather test.

Unfortunately it proved not altogether satisfactory. Rain water collected on the upper section of the screen, drained down and blew back into the cockpit in large quantities. This trouble however can probably be overcome by discovering the correct angle for the upper section of the screen. If this is made flat enough the water which reaches it should be blown upwards rather than drip downwards and go over instead of onto the pilot.

Astonishingly large numbers of people apparently not directly concerned with flying now visit the Aerodrome Hotel on fine week-ends—and just now on other afternoons. This of course is a thoroughly good thing for the hotel, but it also suggests that the general run of the great British public are attracted by the sight of flying if they can watch it in reasonable comfort. And there is quite a lot to be seen from the Hotel nowadays.

AIR MAILS TO SOUTH AMERICA.

The Postmaster-General announces that a weekly air mail service has been established with Brazil, Uruguay, and Argentina, via France, and is available under the usual conditions for all classes of correspondence, except parcels and insured letters and boxes. The service may also be used for correspondence addressed to Paraguay, Bolivia, and Chile.

The mail closes at the London Chief Office at 18.00 hrs. every Wednesday with a supplementary dispatch at 06.00 hrs. every Thursday. The time of transit is about eight days to Rio de Janeiro, and nine days to Montevidio and Buenos Aires. The following special air fees are charged (in addition to ordinary postage):—Brazil, 4s. 6d. per half ounce; Uruguay, Argentina, Paraguay, Bolivia, and Chile, 5s. 6d. per half ounce.

FRICTION in BEARING STREET

"YOU'RE looking mighty glum," said the Conrod, eyeing his near neighbour Crankshaft during a lull in the storm which had been raging lately in Crankcase Villa. "What's eating you anyway?"

"Glum," replied the Crankshaft peevishly, "it's you and your five big brothers that's making me sick. Why you don't know how to treat a Crankshaft these days, hammering away on my journals as you do."

"H'm, it's not our fault," snapped the Conrod, "it's those cheap big ends of ours that are causing all the trouble with their clattering, clumsy ways."

"Keep your insults," cried the big ends in a chorus. "If it wasn't for us and our white metal you'd have both been crocked up long ago."

So the strife raged back and forth, main bearings, rocker arms, and tappets adding their quota to the generous flow of invective till a depression of the self-starter became the signal for a general "set-to."

From forward main bearing to differential, pandemonium raged, each and every member strove to make his complaint heard above the tumult.

Next morning an oily hand unscrewed the plug at the base of Crankcase Villa, and conrods, tappets, crankshaft and rocker arms, now in an exhausted condition, watched with little interest the lowering oil level. The crankshaft called to mind that this lubricant had only been supplied two days previously; but the significance was not apparent to all until a moment later there flowed through the filler cap such a sight for sore eyes that the most ill-used members of the community took heart once more.

CASTROL

The magic word passed from mouth to mouth as the precious fluid rose inch by inch in the crank chamber. The self-starter was depressed.

Immediately the big ends clasped the crankshaft journals in a handshake of reconciliation, whilst contact with the main bearings was almost a caress. From each refreshed and rejuvenated bearing a song of joy broke out sweet and low, which at speeds previously unattainable, became a crooning lullaby.

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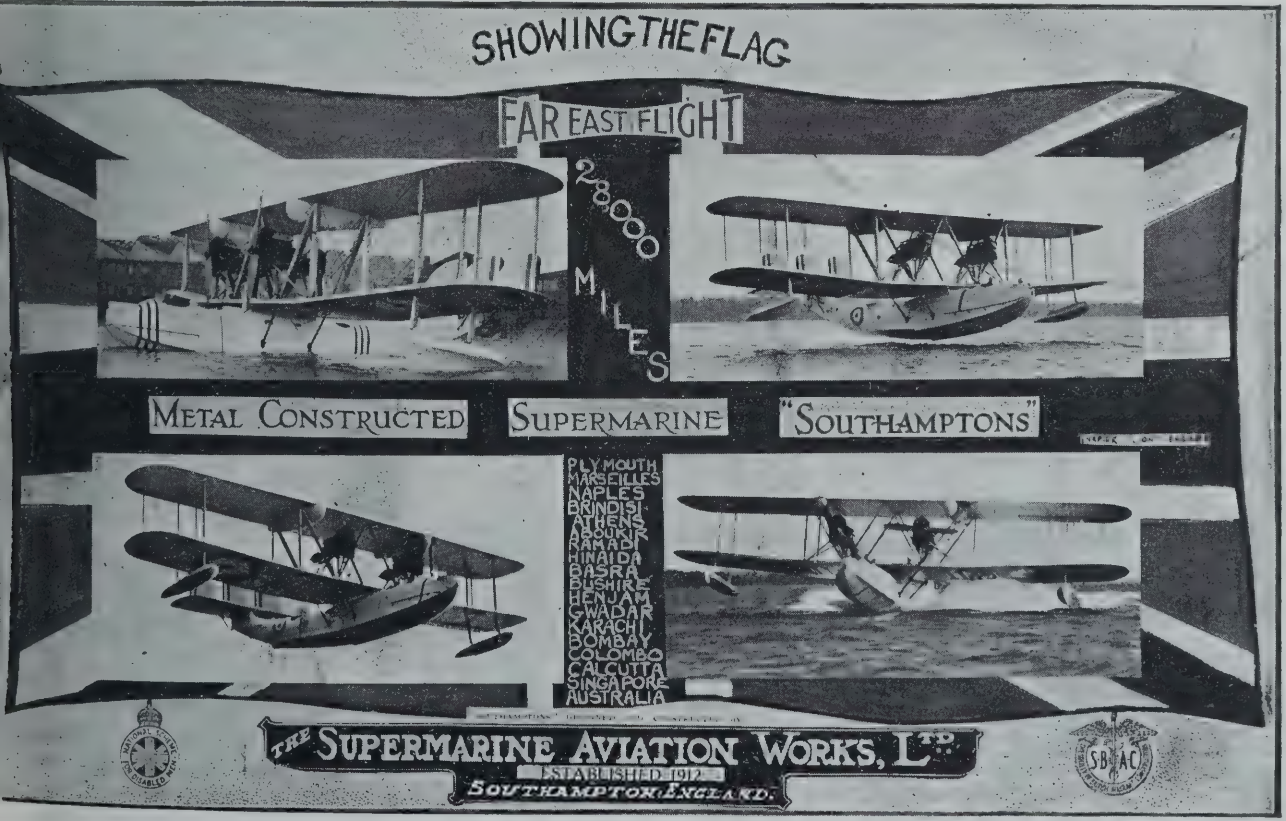

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SOUTHAMPTON, ENGLAND.

ATLANTIC MAIL ACCELERATION.

The French Trans-Atlantic liner, *Ile de France,* has been fitted with a catapult and in future will carry a small aeroplane for the expedition of mails at either end of its journey. On the outward journey, letters bearing a specified surtax and written in France or on board the ship will be flown to New York in order to enable them to be delivered 24 hours before the ship is due to dock. On the homeward journey only letters written on board will be available for a similar service to Le Havre.

The type of machine carried by the *Ile de France* is a Lioré-et-Olivier flying-boat fitted with a 480 h.p. Gnôme-Rhône Jupiter engine.

On the first westward trip the pilot was *Lieut. de Vaisseau* Demougeot, a French naval officer, who has specialised in catapult work in the navy. On Aug. 13, when the *Ile de France* was 500 miles out of New York *Lieut. de Vaisseau* Demougeot left the ship with a load of mail and carrying a mechanic and a wireless operator, and he alighted at the New York Quarantine Station at 17.16 hours.

CALAIS AS A SEAPLANE STATION.

The Calais seaplane station, which will be eventually used for a cross-Channel seaplane service by the *Compagnie Aérienne Française,* will be inaugurated on Sept. 23 on the occasion of the centenary of the foundation of the Calais Chamber of Commerce.

THE TRIALS OF THE FRENCH AFRICAN MAIL SERVICE.

Two pilots of the French *Compagnie Aéro-Postale,* which operates the Toulouse-Dakar air service, are being held captive by the Moors in the vicinity of Rio de Oro, in Spanish Morocco, where they were forced to land with engine trouble.

Negotiations for their release are meeting with little success owing to the fact that the tribe into whose hands they have fallen is threatened with annihilation by a more powerful tribe if it releases the Frenchmen without obtaining a corresponding release of Moorish prisoners. The position is made more difficult by the strict neutrality maintained by the Spanish authorities and the inability of the French to take military action in Spanish territory.

GERMAN COMMERCIAL AVIATION.

The Deutsche Lufthansa A.G. has published the results of its operations for the first six months of 1928.

The number of passengers carried was 46,231, compared with 39,586 during the first six months of 1927. The mileage flown was 4,700,000 kilometres (2,900,000 miles), compared with 3,800,000 kilometres (2,350,000 miles); this increase is due largely to the institution of express services on some of the main routes. The amount of luggage carried was 357,522 kilogs (786,748 lbs.), compared with 331,443 kilogs. (729,175 lbs.) during the corresponding period last year; 471,984 kilogs (1,038,365 lbs.) of freight and 185,064 kilogs. (407,140 lbs.) of postal matter were carried, compared with 276,368 kilogs. (608,000 lbs.) and 138,034 kilogs. (303,645 lbs.) last year.

PILOTS WANTED.

A number of new flying schools are to be opened in Canada. These schools are to use D.H. Moths and the promoters are anxious to employ British instructors preferably with over 1,000 hours' flying experience.

The salary for the first year will be approximately $5,000 and second instructors with a good record would receive about $4,500 per annum.

Will intending applicants apply by letter to the De Haviland Aircraft Co. Ltd., Stag Lane Aërodrome, Edg N.W., giving full particulars of their flying experience should be understood that as all applications must be warded to Canada for scrutinisation full details must b cluded in all letters of application and that the De H land Company cannot at the moment interview inte applicants.

PERSONAL NOTICES.

DEATH.

MATTHEWS.—On Aug. 2, of blackwater fever, Kiminini, Bernard Hobson Matthews, late R.A.F.

BIRTHS.

LAMPREY.—On Aug. 2, at Cairo, the wife of Lieut. F. S. S. La (Green Howards, attached R.A.F.), of a son.

LATIMER-NEEDHAM.—On Aug. 5, at Chilton Lodge, Wendo Phyllis, wife of Flg. Off. C. H. Latimer-Needham, M.Sc., A.F.R. R.A.F.O.—a daughter.

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THE AEROPLANE—AUG. 22, 1928.

The Air Exercises.

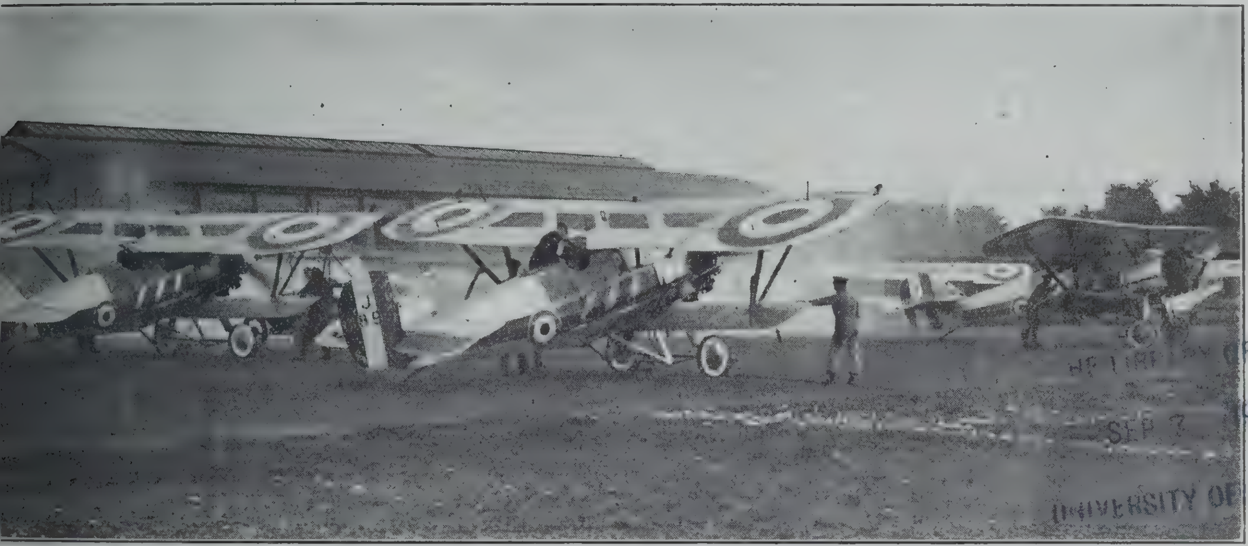
THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C.G.Grey

Vol. XXXV. No. 8. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"GIVE US THIS DAY GOOD HEARTS, GOOD ENEMIES, GOOD BLOWS ON BOTH SIDES."—*(Beaumont and Fletcher.)*



BATTLE ORDER:—A Flight of No. 32 (Fighter) Squadron preparing to take off on a patrol of their sector of the defence of London during the Air Defence of Great Britain Command Exercises last week. The machines are Armstrong Whitworth Siskins with Armstrong Siddeley Jaguar engines.—*("Aeroplane" photograph.)*

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AUG. 22,
1928.

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Aeronautical Engineering

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ON FLYING CLUBS.

Vhatever may be the ultimate development of air lines in s country, whether some new and unforeseen invention l enable us eventually to fly through low cloud and fog, whether we shall run air lines during fine weather and sh them out in bad weather, there is no doubt that we in for a tremendous development of individual flying. d one believes firmly that the money and energy which ne people, like the misguided enthusiasts of the Air ague, would like the Government to spend on air lines ich have no prospect of success, might very much better spent on encouraging one of the most promising sides of operative flying, namely the flying clubs. That is, of urse, if the Government insists on subsidising Civil Avian,—for one still believes with Mr. Churchill that Civil iation should fly by itself.

'ears ago one expressed in THE AEROPLANE the opinion t the success of British Aviation would come through operative flying rather than by individual effort. Co-erative flying as a whole is a very big subject. It includes joy-rider who pays half-a-crown for a two-minute flip, l so is enabled to sample the joys of flying very cheaply ause hundreds of thousands of other people do the same ng. It includes the air-line passenger who can fly from ndon to Paris or from London to Berlin, or even, if shevistically inclined, to Moscow, at a comparatively low ce in proportion to the time saved, because some thou-ds of other people also use air lines and so make possible running of those air lines at a small loss, which is made by a Government subsidy.

specially it includes members of flying clubs, who can n to fly, and go on flying, at quite low costs because ne hundreds of others share the expenses of the club. l it includes the private owner, whose running costs are uced by keeping his machine at a club aerodrome or n at a proprietary aerodrome, where other private owners re the overhead charges and the pay of the mechanics. absolute private owner who keeps an aeroplane entirely his own premises and at his own expense will always be in proportion to the total number of owners of aero-es who maintain them co-operatively.

club is none the less a co-operative affair because it pens to be a proprietary club hoping to make a profit of its members, and not a purely philanthropic institu-run entirely for the benefit of the members. And, if the ernment is going to give subsidies to air lines, such as erial Airways Ltd., which is an ordinary limited com-y in which people have invested capital in the hope some day they may get a handsome return for it, there ns no particular reason why a Government subsidy ıld not be given to proprietary clubs as well as to purely perative clubs such as those which are already subsidised.

THE CASE FOR SUBSIDIES.

he question rather is whether the Government is justified ll in spending the tax-payers' money on subsidies for ıg clubs. The excuse for doing so is that the clubs train ts who would be useful in case of war. Personally one grave doubts as to whether the Government would get ıe for money in this way.

uite a number of pupils trained *ab initio* by the existing s are too old to be of use in time of war. And of the a fairly high proportion must obviously be physically t to pass the Air Ministry's medical tests for General rice. Others again, though they might be quite good ts, might be unfit for air warfare. Some might even be scientious objectors to war of any kind. Furthermore, e a fair number of pupils who have qualified for the ernment subsidy have been women, and therefore would f no use as pilots in time of war. On the whole, there-, one does not believe that the clubs justify their exist-as a source of production of war pilots.

cynic might perhaps hold that the Government is justi-in subsidising the clubs because by enabling a number eople to learn to fly cheaply, and by providing jobs for s and ground engineers, it is laying up for itself on earth a store of votes for the next election. That is a silly argument, because all the club pilots and all the club members put together would not make up a really thumping majority in one constituency.

No,—The real justification of the clubs and of the Government subsidy to them, is that they do give people a chance of taking an active part in flying at a very low cost. They bring in fathers and mothers of families, and the children as well. They bring in all grades of Society,—quite poor working men and women, impoverished peers, and the wealthy sons of self-made industrialists. And thus the clubs help materially to spread the gospel of aviation among all classes.

In other words, they are quite valuable in making the Nation air-minded. And an air-minded nation which regards airfaring as a normal method of transport is, in due course, going to vote big money for a big Air Force just as in the past, being a seafaring nation, we have voted big money for a big Navy.

Therefore the little subsidies which are being spent on the flying clubs are really bread cast quite justifiably on the waters, or into the air, with the odds very much on its return with interest.

PURE DEMOCRACY.

One of the chief beauties of our flying clubs is that hitherto they have been so delightfully democratic. Not very long ago the daily papers were immensely tickled because they discovered that a taxi-driver was learning to fly at one of the clubs. Certainly his was a sporting effort, though one believes that he is in quite a good way of business, and is probably much better off than the average young University man starting in a profession, or even than a junior officer in any of the three Fighting Services. But it sounded very well to say that in the same club was a taximan, and a baronet, and the son of a duke, and one or two ladies of title.

We in this country are so quaintly snobbish about being democratic. In the United States, on the other hand, when people want to be snobbish they are snobbish frankly and openly. Nowhere else in the World do the rich segregate themselves from the poor, irrespective of their real social status, so strictly as do the Americans. For example, the luxurious American country club is a co-operative establishment, not for the saving of money, but for the recognition of each member's financial status. Only there can the well-to-do American get away from the common poor, who may be socially his superiors.

How this reacts on aviation is interestingly shown in a letter which came recently from a friend in the States. It reads thus :—

AVIATION COUNTRY CLUBS.

It is recognised that there are many wealthy people in the United States passively interested in aviation (witness the large demand for securities of aeronautical enterprises). Furthermore, it is patently a fact that there are tens of thousands of people of moderate means who are actively interested in flying, who cannot satisfy their desire to be in the air because of the high cost of aviation in this country. Finally, there are numberless people who would fly (a) if fields were more conveniently located, (b) if the fields that do exist were pleasanter places to visit, (c) if they knew more about flying.

In order to take advantage of this situation a corporation could be formed to exploit it, by constructing a string of fields, buying equipment, hiring instructors, and soliciting business from anyone and everyone. In a limited way, this has been done, but it has failed to bring down the cost of flying to any reasonable figure, and it has created the lowest kind of "amusement-park" atmosphere at the new airdromes.

As an alternative, an affiliated series of clubs is proposed, with membership in any unit carrying full privileges in any and all of the other units.

Memberships are of three kinds, Proprietary, life and annual, and the initiation fees are respectively $1,000, $5,000, $200. No dues are paid by life members, but proprietary members pay $150 per annum, and annual members pay $100 per annum. All the assets of the clubs belong to the proprietary members.

"Aviation Country Clubs" have been fortunate in procuring the services of Messrs. D. J. Adams, J. Reaves and Miss Ruth Nichols, a prominent lady flyer, as organisers, and it is now certain that three clubs will be formed in the immediate future, at Farmingdale, Long Island; Armonk, Westchester, and Orange County, New Jersey. The Long Island Club has leased the use of the new field of the Fairchild Company for its exclusive use, except test flying by Fairchild pilots. This club will be opened June first, 1929.

The management of Aviation Country Clubs is vested in a Board of Governors under the law, but this Board has delegated its powers to a National Advisory Committee, consisting of two members from each club. In the words of the Charter, the National Advisory Committee will "promote cohesion of thought and effort; assure a sound financial policy; keep a requisite degree of uniformity in the type and equipment of each club; and bring to bear on the questions, problems and materials of each, their collective knowledge, experience and ability to purchase."

Each club elects its own membership, buys its own equipment and so forth, and is independent within the broad limits of the national charter, although among other things this provides for a certain silhouette,* in the form of an aeroplane, that each club house shall have.

My description probably sounds as if the whole thing were a promoter's plan, on paper, but it is in no way a commercial undertaking, and it has progressed far beyond the paper stage. Several hundred members have joined, all of them "desirable" people. Messrs. H. P. Davison, Richard Hoyt, William Harkness, C. V. Whitney, Sherman Fairchild, J. T. Pratt, are among the prominent people who are giving the organisation their support.

Black and Bigelow, Inc., consulting engineers, have estimated that these clubs should be able to cover expenses by charging $9 an hour for solo flying, and $12 an hour for dual instruction, which rates are almost two-thirds less than those in force at commercial fields. Crash liability is directed between the perpetrating member and the club.

[* That is to say a badge or crest. It does not refer to the contour of the members.—C. G. G.]

A Sound Idea.

Here is an idea which might quite reasonably succeed in this country,—even as a commercial undertaking such as the writer of the foregoing letter so distinctly disclaims in the American scheme.

Our existing flying clubs co-operate in a spirit of most brotherly love with one another. Members of one club visiting any other are received most hospitably, and are made free of all the privileges of the clubs which they visit. But there are not enough of these locally-formed clubs to deal with all the possible developments of co-operative flying in this country.

One is inclined to think that more rapid progress could be made if some of the big monied interests were to take a hand in the game and were to work out a scheme for aviation country clubs, rather on the American lines, capitalised and organised and directed from one central office run by experienced business men.

Probably such an organisation could hardly hope for big profits for the first few years. But at this stage in the development of aviation it could probably possess itself of desirable landing-grounds and country houses as club premises at considerably lower cost now than it might be able to do some years hence when flying has developed more widely.

There is quite a possibility that just as the increase of motor traffic has made fortunes for the proprietors of ro side pubs., which have now become famous "motor hos ries," so flying may mean a considerable enhancement the value of out-of-the-way country houses standing in th own grounds and now practically derelict.

Some humorist has referred to the great clubs in Pall M as co-operative palaces. There is quite a possibility tha successful scheme for aviation country clubs might prod co-operative palaces out in the country, as useful to th who travel by air as were certain mansions (ungratefu known as "Jew palaces") over which Service aviators the very early days of cross-country flying used habitually suffer from engine failures and forced landings, trustfu hoping for the hospitality of the inhabitants.

A proprietary organisation of such a nature would be even a better position to decide who was and who was a "desirable person" as a member than would be a ge inely co-operative club such as those which at present ex Naturally the desirability of the member would depe largely on his known ability to spend money at the clu desirable premises.

Possibilities.

The details of such a scheme would need to be worked with care, but there are evident possibilities in it. T organisation could own aeroplanes as well as maintain machines of private owners. It could teach flying and machines to those whom it taught. It could run taxi s vices, concentrating its fleet of taxies in whichever part the country seemed to offer the most traffic at differ seasons. It could arrange emergency landing grounds over the country,—apart from its big aerodromes with c premises thereon. Its aerodromes and landing grou could be available to non-members for a reasonable f without allowing such visitors the use of club premises.

Although Great Britain is a very small island and th is always the chance of flying over the edge of it and gett lost, yet within our 800 miles or so of length and our miles or so of width, there is quite a lot of country which worth visiting. And there is quite enough decent weat during the year to give flying enthusiasts all the chan they can wish of "seeing Britain first" before ventur on Continental air tours.

Something very like the aviation country club id though it had primarily to do with air ports, was forward in the very earliest days of flying, just ab twenty years too early, by Mr. Harrington Edwards, w one believes, still takes a vivid interest in aviation, thou his business prevents him from active participation in i

We in this country have a habit of originating an id then America takes up the idea and develops it, and th when everyone has forgotten our origination of it, we ad what is thought to be an American idea and perfect Consequently we may see some day in this country a v perfect system of aviation country clubs. And when arrives it will undoubtedly fill a real need, for which rea it will deserve the support not only of active aviators and serious investors, but of His Majesty's Treasury.—C. G. G

A ROYAL VISIT.

On Aug. 12 their Majesties the King and Queen and a large party visited the works of S. E. Saunders Ltd., of East Cowes, Isle of Wight, where they were received by Mr. S. E. Saunders, Mr. H. S. Saunders and Capt. Nicolson.

Their Majesties made a very thorough tour of the various shops where they saw certain special marine craft and aircraft in course of construction and were so interested that the tour of inspection lasted for over one and a-quarter hours.

A CROSS-CHANNEL ACHIEVEMENT.

For the first time on record, during the week Aug. 12-18 inclusive, more than 2,000 passengers and more than 50 tons of goods were transported across the Channel by air.

To be exact, there were 2,024 passengers and 54½ tons of freight. To carry these loads 264 machine loads were required. These needed 506 pilots and crew to operate them, so that in all 2,530 people crossed the Channel by air.

Imperial Airways Ltd. carried 1,010 passengers and 26 tons of goods, which was practically half of the passenger and goods traffic.

For further details see the "Commercial Aeronautics" table at the end of the paper.

MAJOR CARLO DEL PRETE.

On Aug. 16 Major del Prete died at Rio de Janeiro from injuries received in an accident to a Savoia flying-boat which he and Capt. Arturo Ferrarin were testing at Ponta Galleao.

Major Carlo del Prete was born in 1897 at Fivizzano and entered the Naval Academy in 1912. After graduation he served two years in submarines and later was posted to the battleship *Dante Alighieri.* In 1921 he took up the study of engineering and aviation and was granted his pilot's certificate in October, 1922. Major del Prete collaborated w the Marchese de Pinedo in the organisation of the latte flight from Sesto Celende to Melbourne, Tokyo and back Rome in 1925. In 1927 he was responsible for all the p parations for the flight round Atlantic and on this occas he also acted as second pilot to the Marchese de Pinedo.

On May 31-June 2, 1928, he, in company with Capt. Art Ferrarin, succeeded in breaking the World's Duration cord by remaining in the air above Rome for 58 hrs. 37 mi in a Savoia S.64 monoplane.

On July 3-5 in the same machine he and Capt. Ferra flew non-stop from Rome, across the South Atlantic, Natal, in Brazil, a distance of over 5,000 miles, thus break the World's Record for distance covered in a straight li

On landing on the beach at Natal at the conclusion of t flight, the machine was damaged, and the remainder of journey to Rio de Janeiro was completed by rail.

At Rio de Janeiro Major del Prete and Capt. Ferrarin quested that they should be permitted to test the Sav flying-boat which had previously arrived from Italy to augurate an air line from Rio to South Brazil and it was ing this flight, made against the wishes of the authorit that the accident happened which resulted in Major del Pr being so badly injured that he died seven days later.

By his death Italy has lost one of its most brilliant of younger officers. It is the irony of fate that he should h been killed as the result of a test flight mishap.

A funeral ceremony with full military honours was gi Major del Prete in Rio de Janeiro after which the body embarked on an Italian steamer for transport to Italy wh the burial will take place. Capt. Ferrarin had sufficiently covered from his injuries to be able to return to Italy on same boat. A sad homecoming from a journey so brillia begun.

"No type of engine has been put to so severe a test before"

Daily News
30th June, 1928

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TWENTY-FOUR HOURS IN A MOTH.

At 5.30 p.m. on Aug. 16 Mr. Hubert Broad took off from Stag Lane aerodrome in a D.H. Moth (D.H. Gipsy engine) in an attempt to beat all existing figures for endurance flights in light aeroplanes, the previous best, so far as can be ascertained, being that of Mr. Bert Hinkler when he flew non-stop from London to Rome in 13 hours on the first stage of his Australian flight in an Avro Avian.

He was flying a standard Moth—incidentally, it was the same machine as used by Capt. de Havilland on his recent altitude record flight—except for the provision of extra tanks, and its total weight on taking-off was 1,660 lbs., which included 80 gallons of petrol.

His log of the flight during the ensuing 24 hours was as follows : 5.30 p.m.—Hendon, 6.40 p.m.—Over Oxford at 2,000 ft., 7.5 p.m.—Swindon, 7.40 p.m.—Gloucester, 8.30 p.m.—First meal of coffee and sandwiches, 8.40 p.m.—Bristol, 9.30 p.m.—Darkness, 9.55 p.m.—Maidenhead, 11.15 p.m.—Over London at 3,000 ft. watching the theatres emptying, midnight—North of Watford, could see lights of Croydon and also Tatsfield lighthouse, midnight to dawn—Remained over Edgware, 2.20 a.m.—Another meal of coffee and hard-boiled eggs, 4.10 a.m.—First signs of dawn, 5.0 a.m.—Ground visible again, 5.10 a.m.—Passed a night bomber near Biggin Hill flying low with all lights on, 5.40 a.m.—Half the task done, south of Maidstone, 6.10 a.m.—Over Folkestone, 6.30 a.m.—Margate, 8.5 a.m.—Epsom, 11.25 a.m.—Huntingdon, 12.10 a.m.—Stamford—feeling very sleepy, 2.30 p.m.—Edgware, 3.15 p.m.—Brooklands, 4.30 p.m.—Ipswich.

At 5.15 p.m. Mr. Broad returned to Stag Lane, over which he circled until signalled to land by the firing of a Véry light at exactly 5.30 p.m. On landing, after having remained in the air for exactly twenty-four hours, he still had 12 gallons of petrol left which, at the rate of consumption during the flight, would have been sufficient for about another 4½ hours.

The engine ran perfectly throughout the flight and consumed on an average 2¾ gallons an hour. The oil consumption for the whole 24 hours was only 1¼ gallons.

During the flight it is estimated that he covered a total distance of 1,440 miles, which, if flown in a straight line, would have easily beaten the World's Distance Record for light aeroplanes. Unfortunately there is no officially recognised record for duration in the light aeroplane class, but this certainly does not detract from the excellence of the performance. The D.H. Moth itself does not require such a demonstration to prove its qualities, but for the D.H. Gipsy engine to prove its reliability and economical fuel and oil consumption within a month of putting up a World's He Record and winning the King's Cup Race round G Britain certainly provides it with an adequate introduc into Light Aeroplane Society. During the flight Mr. Br read three complete novels to relieve the boredom of flight, a tribute in itself to the flying qualities of the M the clockworklike regularity of the Gipsy engine and physical and mental endurance of Mr. Broad.

Mr. Hubert Broad being congratulated by Mr. W. L. Hope on landing after his twenty-four hour endurance flight on a D.H. Moth (D.H. Gipsy engine).

(*"Aeroplane" photograph.*)

CAPE TOWN—LONDON.

On Aug. 14, Lieut. P. Murdoch, S.A.A.F., who recently from London to Cape Town in 13 days on an Avro A (A.D.C. Cirrus II engine), left Cape Town on his ret flight to England.

He reached Beaufort West later in the day and left ag for Pretoria. For two days no news was heard of him u he was discovered on Aug. 16 at Blaauwbank, south of Aar, where he had been forced to land on the day he star

On Aug. 19 he completed repairs to his machine and ceeded to Pretoria, where it will be given a thorough o haul.

NEW YORK—MONTREAL AIR MAIL ROUTE.

Canadian Colonial Airways, Inc., of New York City, been awarded the contract by the U.S. Post Office for carry mails by air from New York City to Montreal one way on bid of 6 cents per mile. This company already holds a tract from the Canadian Government for the carriage of from Montreal to New York City.

The service is to be inaugurated within six months it is to operate for ten years. Air mail postage will not required on this route.

A FRENCH LIGHT AEROPLANE COMPETITION.

For the Light Aeroplane Competition which is being org ised by the *Association Française Aérienne* to be held at between Sept. 10-21 twenty-five entries have already been ceived. Of these sixteen are French, six British and th German.

The British entries are :—C.L.A.4 (Bristol Cherub engi entered by the Felixstowe Aero Club, pilot : Flt. N. Com R.A.F.; D.H. Moth (A.D.C. Cirrus III engine), pilot : Li R. R. Bentley, M.C., A.F.C., S.A.A.F.; Avro Avian, pi E. W. Percival; D.H. Moth (A.D.C. Cirrus III engine), pi T. Neville Stack; D.H. Moth (D.H. Gipsy engine), pi Hubert Broad; D.H. Moth (A.D.C. Cirrus II engine), pi Lady Heath.

The German entries include two Klemm-Daimler mo planes one fitted with the 20 h.p. Daimler-Mercedes en and the other with the 40 h.p. Salmson engine, and a Bau Sausewind monoplane, fitted with a 60 h.p. three-cyli Wright Gale engine.

Among the French entries are six Caudron machines fi with either Anzani or Salmson engines, two Albert mo planes, a Peyret tandem monoplane of the Itford Hill fitted with a 16 h.p. Sergant engine, a monoplane ente by M. Mauboussin built by M. Peyret and fitted with a 34 A.B.C. Scorpion engine, and a number of other types at present, unknown characteristics entered by var societies and private individuals.

ANOTHER ATLANTIC FLIGHT.

On Aug. 16 Mr. Bert Hassell and Mr. Parker Cramer off from Rockford, Illinois, in an attempt to fly to Stockh by way of North-Eastern Canada, Greenland, Iceland Scandinavia, and arrived at Cochrane, Northern Ontario, the same day.

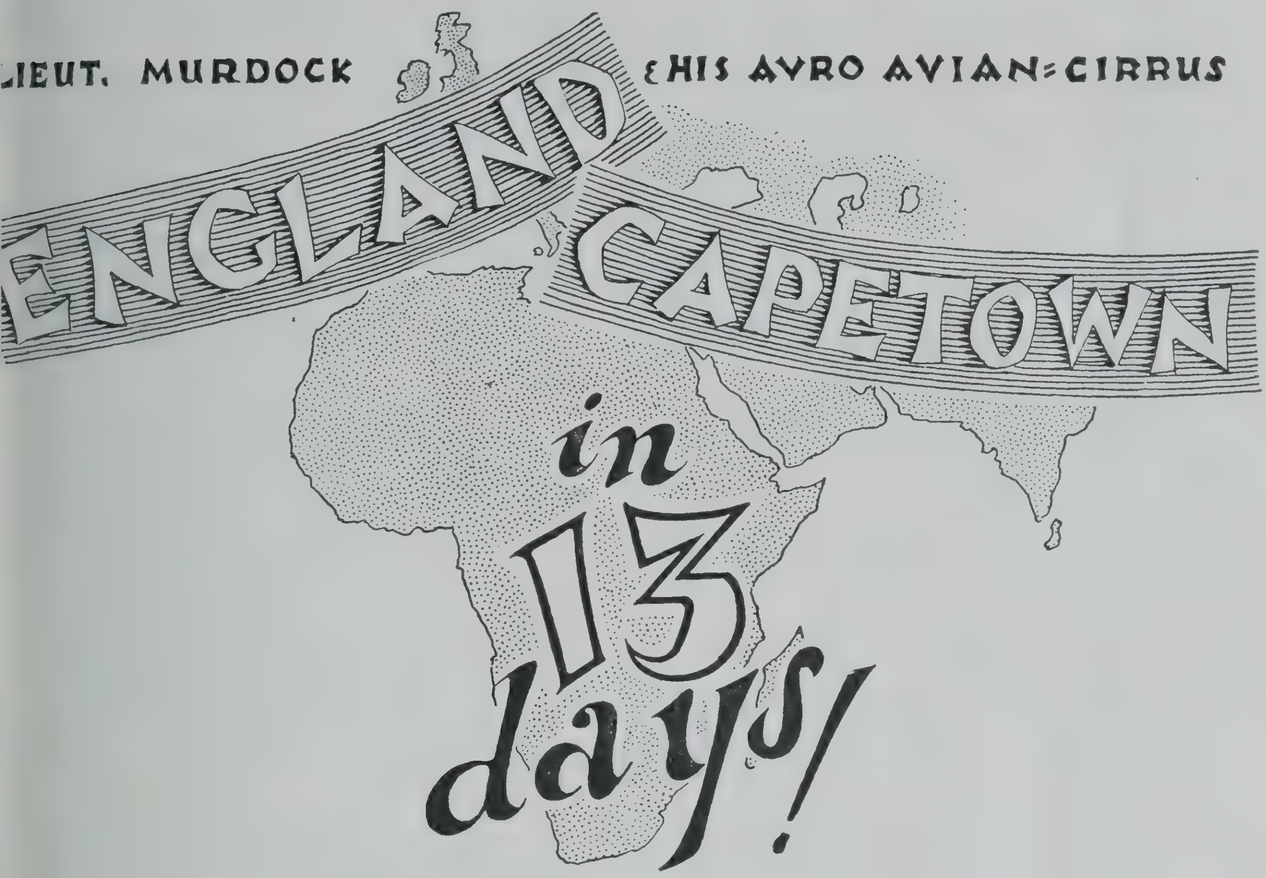
The machine used, a Stinson Detroiter, has been purch out of funds contributed by the inhabitants of Rockford is known as the "Greater Rockford."

On Aug. 18, after being held up for two days by weather, the "Greater Rockford" took-off for the M Evans Observatory, Southern Greenland, and was later to pass over Rupert House, a Hudson Bay post in Nort Quebec. The machine maintained wireless communica with the town of Rockford until 03.00 hrs. on Aug. 19, wh message received indicated that the machine was 75 mile Cape Chidley and approximately 400 miles from its o tive. Since then no further news has been received anxiety is being felt as to the safety of the machine an crew.

CHRISTMAS GREETING CARDS.

In response to a number of requests it is proposed to lish through The Aeroplane Book Department a serie Christmas Greeting Cards designed by Leonard Bridg The series will illustrate a number of well-known British craft and it is hoped that these cards will be on sale du October.

When preparations are more further advanced full ticulars will be published in The Aeroplane.



Lieut. Murdock's brilliant flight to the Cape, one of the latest achievements by aircraft using the Fairey Metal Airscrew, adds a further point in emphasis of the reliability, efficiency and durability of these airscrews.

Hinkler's Australia flight, Lady Heath's Cape flight and others of a similar nature, together with the winning of speed events such as the Races for the King's Cup, the Schneider Trophy, etc., fully substantiate the high qualities of the Fairey Metal Airscrew.

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THE ROYAL AIR FORCE.

The London Gazette.

Aug. 14.

General Duties Branch.—Plt. Off. D. L. Maclean is promoted to the rank of Flg. Off. (July 10); Plt. Off. on probation G. Fachiri is confirmed in rank (July 18); Flg. Off. E. L. Burslem is transferred to the Reserve, Class A (Aug. 4); Lt. I. R. Grant, R.N., Flg. Off., R.A.F., ceases to be attached to the R.A.F. on return to Naval duty (Aug. 1); Lt. B. W. Knowles, R.M., Flg. Off., R.A.F., ceases to be attached to the R.A.F. on return to duty with the Royal Marines (Aug. 10); Plt. Off. on probation B. W. C. E. Hartwell relinquishes his S.S. comn. on account of ill-health (Aug. 15).

Medical Branch.—Flt. Lt. A. F. Cook is seconded for duty with the Transjordan Frontier Force (Aug. 1).

Memorandum.—The permission granted to Sec. Lt. C. C. Green to retain rank is withdrawn on his enlistment in the ranks of the Army (July 12).

Reserve of Air Force Officers.—General Duties Branch.—The following are granted comns. in Class A.A. (ii) as Plt. Offs. on probation :—C. H. Carter, J. W. T. Jones, A. F. Fleetwood-Lawton (July 30); H. C. Usborne (July 31); C. F. Morris (Aug. 1).

The following Plt. Offs. on probation are confirmed in rank :—G. H. Robins (July 19); H. P. Fraser (Aug. 2); J. H. M. Smith (Aug. 3); P. Booth (Aug. 4); P. Kinsey (Aug. 8). Flg. Off. H. W. Westaway is transferred from Class A to Class C (May 19); Plt. Off. I. J. Sankey is transferred from Class C to Class A (Aug. 14). The following Flg. Offs. resign their comns :—M. K. McGregor (May 16); A. E. Golds (May 19); P. S. Clarke (May 19).

Auxiliary Air Force.—General Duties Branch.—The following to be Plt. Offs. :—No. 601 (County of London) (Bombing) Sqdn.—I. A. Murray (July 17). No. 602 (City of Glasgow) (Bombing) Sqdn.—J. S. Feather (July 10).

Appointments.

Week ending Aug. 20.

General Duties Branch.—Squadron Leader E. C. Emmett, M.C., D.F.C., to No. 19 Sqdn., Duxford, 10/8.

Flight Lieutenants F. G. Stammers, O.B.E., to Air Ministry, Directorate of Personal Services, 23/8. A. L. Chick, A.F.C., to No. 2 Sqdn., Manston, 23/8. R. P. M. Witham, M.C., to Air Ministry, Directorate of Organisation and Staff Duties, 1/9. H. F. Bradley, to R.A.F. Depot, Uxbridge, 22/8. M. C. Dick, A.F.C., to H.M.S. *Furious*, 1/9.

Flying Officer A. D. McDowall, to H.Q., A.D.G.B., Uxbridge, 20/8.

Pilot Officers : The undermentioned Pilot Officers are posted on appointment to Permanent Commissions from the R.A.F. Cadet College, Cranwell, with effect from 28/7 :—J. T. Stephenson, to No. 2 Sqdn., Manston. F. Whittle, to No. 111 Sqdn., Hornchurch. A. E. Dark and A. L. Weait, to No. 12 Sqdn., Andover. W. R. Worstall, C. B. Hughes and J. W. Homer, to No. 99 Sqdn., Upper Heyford. E. M. F. Grundy, to No. 56 Sqdn., North Weald. J. Mutch, to No. 41 Sqdn., Northolt. H. R. Dale and H. J. Pringle, to No. 43 Sqdn., Tangmere. R. J. Cooper and J. A. C. Stratton, to No. 16 Sqdn., Old Sarum. G. N. E. Tindal-Carill-Worsley, J. E. Jorgensen and J. J. Owen, to No. 3 Sqdn., Upavon. L. F. Sinclair, to No. 4 Sqdn., S. Farnborough. N. E. White and A. L. Franks, to No. 29 Sqdn., North Weald. A. Wall, to No. 7 Sqdn., Worthy Down. R. A. Sprague, to No. 13 Sqdn., Andover. F. P. Hewitt, to No. 100 Sqdn., Bicester. J. G. Llewelyn, to No. 58 Sqdn., Worthy Down. R. B. Councell, R. D. Williams, C. Ryley and E. J. Laine, to R.A.F. Base, Calshot. C. V. J. Pratt, to R.A.F. Base, Gosport. P W. A. Dudgeon, to School of Army Co-operation, Old Sarum.

Fatal Accidents.

The Air Ministry regrets to announce that as the result of an accident at Sheikh Othman, Aden, to a Fairey III.F machine of No. 8 (Bombing) Sqdn., Aden, on Aug. 14, Flt. Lt. Edward Norman Tickner Edwardes, the pilot of the aircraft, was killed and the passenger, 362026 L-AC. Albert Wyndham Jones, was slightly injured.

The Air Ministry regrets to announce that as the result of a collision in the air at Digby between a D.H.9a and an Avro machine of No. 2 Flying Training School, Digby, on Aug. 17, Plt. Off. Adrian Gordon Cole, the pilot of the Avro machine, and Plt. Off. Bertrand Guy D'Olier, a passenger in the D.H.9a, were killed. Flg. Off. Alfred Rodney Feather, the pilot of D.H.9a, was dangerously injured, and died of his inju after admission to hospital.

At the inquest at Digby on Aug. 18 on Plt. Offs. Cole and D'C AC. Albert Edward Baldwin said that when the crash occurred he working on a football field and saw the Avro coming from the dire of Cranwell. The D.H.9 was approaching it at a right angle overtook the Avro. "The Avro was coming down to land on aerodrome, and when the pilot saw the D.H.9 he appare straightened out to avoid it," he said. "The right wing of the D caught the tail of the Avro when they were about 500 ft. up. machines got into a spin and crashed."

AC. Frederick Lumley said that the D.H.9 banked to mak landing just before the crash.

The Coroner, summing up, said : "Apparently both machines wa to land, and it seems from the evidence that, owing possibly to error of judgment, one of the machines failed to clear the o I do not believe that you can impute any blame to anybody, simply say that it was an error of judgment attended with unfortu results."

The jury returned a verdict of "Death by misadventure whil duty," and found that there was no negligence.

The inquest on the body of Flg. Off. Feather was held at Cran Recording a verdict of "Accidentally killed while flying," Coroner said, "It is a technical matter which neither a jury n coroner understands. Knowing that the Air Ministry investigates technical side of such accidents, I consider that the coroner's inq is a mere formality."

The Far East Flight.

The four Supermarine Southampton flying-boats (Na Lion engines) of the Far East Flight, R.A.F., under command of Group Capt. H. M. Cave-Browne-Cave, D.S D.F.C., left Brisbane on Aug. 18, for Singapore. The r is *via* Gladstone, Bowen, Cookstown and Thursday Islan

Inter-Services Athletics.

The Inter-Services Athletic Championships were hel Woolwich Stadium on Aug. 18. The Army retained Championships with 27 points, the R.A.F. were second 20 points, and the Royal Navy and Royal Marines third 13 points.

The R.A.F. put up a new record in the Two Miles R Race by covering the distance in 8 min. 4 4/5 sec., bea the Army Record of 1925 by 1 4/5 sec. The R.A.F. Tea this event were AC. F. Turner, Cpl. Tym, AC. Hester AC. R. Thomas.

The R.A.F. also won the Three Miles Team Race 18 points, the Army scoring 17 points and the Navy 10 po The R.A.F. team were Cpl. S. Ferris, L-AC. Goodall and A. Johnson.

The third Air Force victory was in the One Mile T Race. They scored 23 points to the Army's 16 points the Navy's 6 points. The R.A.F. team were Cpl. W. T AC. F. Turner and AC. R. Thomas. AC. R. Thomas was man home in 4 min. 29 2/5 sec.

The Royal Air Force Club.

The Club will be closed for repairs and decorations f mid-day on Sunday, Sept. 2, until mid-day on Monday, 15. Members will be the guests of the following Club The Junior Constitutional Club, from Sept. 2. The Cav Club from Sept. 3. The Junior Naval and Military Club f Sept. 17. The Naval and Military Club from Oct. 2.

All letters, parcels, telegrams, messages, etc., usually lected by Members of the Club may be called for at Cavalry Club. Other letters, etc., will be re-directe Members may require, the Secretary's Office being oper the whole of the period.

A. T. Wynyard-Wright, Capt., Secreta

STANDING BY.—Fairey III.F day-bombers of No. 207 (Bombing) Sqdn., R.A.F., ready to start on a raid during the Air Defence of Great Britain Command Exercises last week. No. 207 Sqdn. is commanded by Wing Cdr. J. B. Graham, M.C., A.F.C., and is stationed at Eastchurch.—("*Aeroplane*" *photograph.*)

The Long Trek!

England to South Africa travelled by Lt. R. R. Bentley, M.C., A.F.C. (both ways), Lady Bailey, Lady Heath, and now by Lieut. Murdoch,

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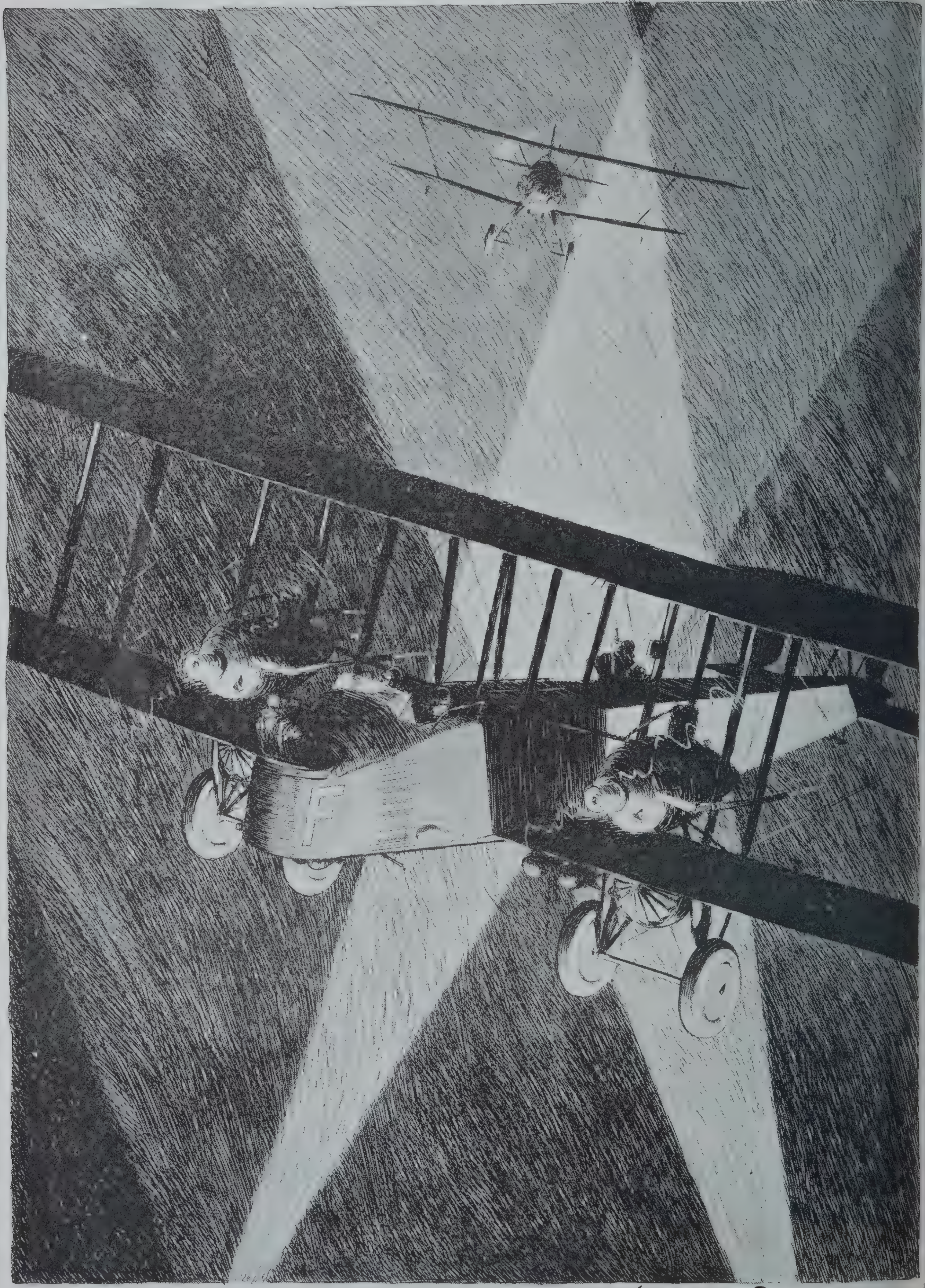
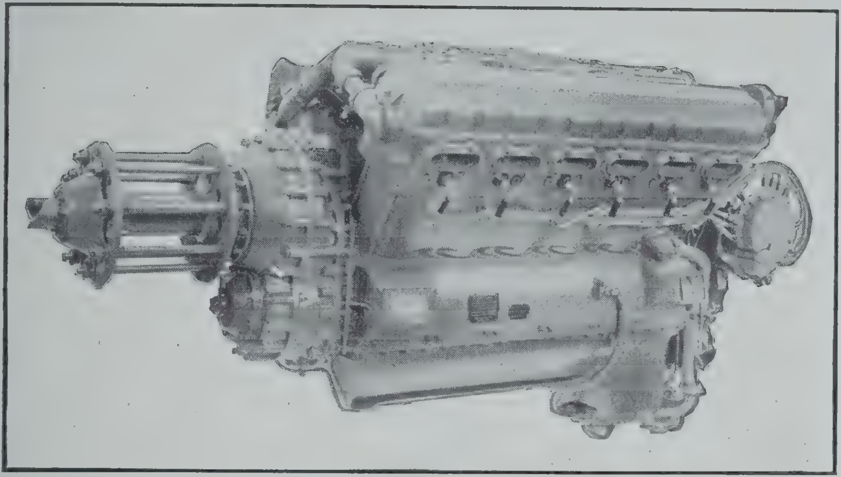


Leonard Bridgman '24.

An impression of a Vickers Virginia (two Napier Lion engines) being attacked by an Armstrong Whitworth Siskin (Armstrong Siddeley Jaguar engine) somewhere over Eastland.



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The new Rolls-Royce 'F' aero engine, designed by Mr F. Henry Royce, has successfully passed the British Air Ministry's 100-hour test at the first attempt. This noteworthy achievement is a further tribute to the reliability of Rolls-Royce aero engines for which, since their inception, they have always been renowned.
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THE AIR DEFENCE OF GREAT BRITAIN COMMAND EXERCISES

[By C. M. McAlery.]

The Command Exercises of the Air Defence of Great Britain began at 18.00 hours on Aug. 13 and ended at 23.00 hours on Aug. 16.

The main object of this year's Exercises was to test the operational efficiency of individual Units and not to test the efficiency of the Air Defence of London. Officers Commanding Squadrons were allowed more latitude in operating and controlling their Squadrons this year than last year and subject to the general direction of A.D.G.B. they were allowed to operate their commands in any way they thought fit.

The minor objects of the Exercises were to test, (a) the co-ordination of air and ground defences; (b) aerodrome discipline; (c) climbing in formation and high altitude flying requirements; (d) issue of orders; (e) spotting of hostile aircraft; (f) fighting tactics; (g) inter-communication problems; (h) co-ordination at night; (i) ground signals; and (j) organisation of operations rooms.

The general scheme of the Exercises was much on the same lines as last year. Eastland, a continental power, with a basis of operations in Northern Europe, was at war with Westland, whose capital was London.

The Eastland Forces consisted of the Units of the Wessex Bombing Area under the command of Air Vice Marshal Sir John Steel, K.B.E., C.M.G., C.B.; No. 1 Air Defence Group, under the command of Air Commodore E. L. Gerrard, C.M.G., D.S.O.; and No. 503 (Bombing) Squadron, Special Reserve and the Night Flying Flight operating under direct orders from Headquarters, Air Defence of Great Britain.

The Westland Forces consisted of the Units of the Fighting Area under the command of Air Vice Marshal Sir Robert Brooke-Popham, K.C.B., C.M.G., D.S.O., A.F.C.; the 1st Anti-Aircraft Battalion, R.E. and the Air Defence Formations, T.A. under the command of Major-General C. A. Ker, C.B., C.M.G., C.B.E., D.S.O.

The details of the Forces were as follows :—

Eastland : Day Bombers :—No. 39 (Bombing) Sqdn., Bircham Newton, D.H.9a (Liberty engines), Sq. Ldr. H. V. Champion de Crespigny, M.C., D.F.C.; No. 207 (Bombing) Sqdn., Eastchurch, Fairey III.F (Napier Lion engines), Wing-Cdr. J. B. Graham, M.C., D.F.C.; No. 11 (Bombing) Sqdn., Netheravon, Hawker Horsley (Rolls-Royce Condor engines), Sq. Ldr. P. H. Cummings, D.F.C.; No. 12 (Bombing) Sqdn., Andover, Fairey Fox (Curtiss D.12 engines), Sq. Ldr. T. E. Salt, A.F.C.; No. 100 (Bombing) Sqdn. (less one Flight); Andover, Hawker Horsley (Rolls-Royce Condor engines), Wing-Cdr. N. T. Gould, M.C.; No. 605 (Bombing) Sqdn., A.A.F., Manston, D.H.9a (Liberty engines), Sq. Ldr. J. A. C. Wright; No. 600 (Bombing) Sqdn., A.A.F., Lympne, D.H.9a (Liberty engines), Sq. Ldr. the Rt. Hon. F. E. Guest, P.C., C.B.E., D.S.O., M.P.; No. 601 (Bombing) Sqdn., A.A.F., Lympne, D.H.9a (Liberty engines), Sq. Ldr. the Lord Edward Grosvenor; No. 503 (Bombing) Sqdn., S.R., Waddington, Fairey Fawn (Napier Lion engines), Wing-Cdr. the Hon. L. J. E. Twistleton Wykeham-Fiennes.

Night Bombers :—No. 9 (Bombing) Sqdn., Manston, Vickers Virginia (Napier Lion engines), Wing-Cdr. C. Durston; No. 7 (Bombing) Sqdn., Worthydown, Vickers Vi ginia (Napier Lion engines), Wing-Cdr. C. F. A. Porta D.S.O., M.C.; No. 58 (Bombing) Sqdn., Worthydow Vickers Virginia (Napier Lion engines), Wing-Cdr. E. Norton, D.S.C.; No. 99 (Bombing) Sqdn., Upper Heyfor Handley Page Hyderabad (Napier Lion engines), Wing-Cd B. E. Smythies, D.F.C.

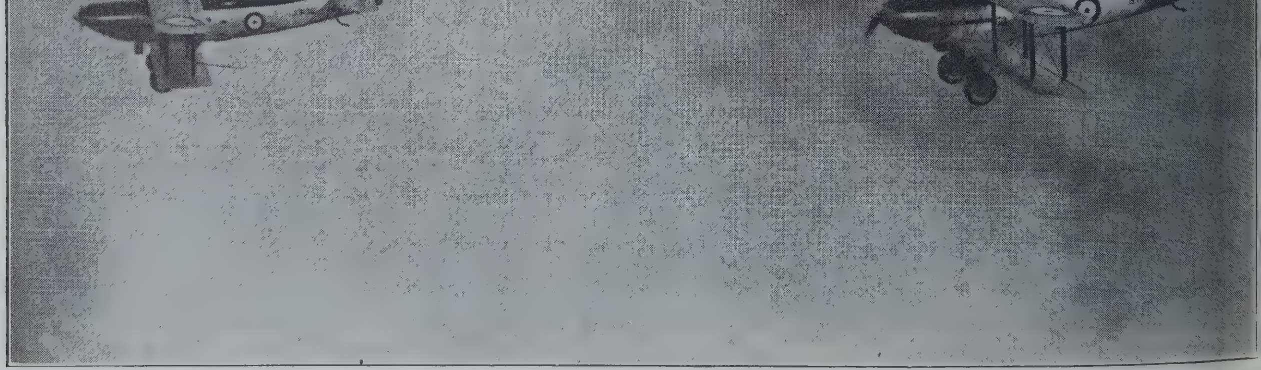
Westland : Fighter Squadrons :—No. 29 (Fighter) Sqdn North Weald, Armstrong Siddeley Siskin (Jaguar e gines), Sq. Ldr. M. L. Taylor, A.F.C.; No. (Fighter) Sqdn., North Weald, Armstrong Siddeley Siski (Jaguar engines), Sq. Ldr. A. Lees; No. 19 (Fighter) Sqdn Hornchurch, Armstrong Siddeley Siskin (Jaguar engines Sq. Ldr. H. W. G. Jones, M.C.; No. 111 (Fighter) Sqdn Hornchurch, Armstrong Siddeley Siskin (Jaguar engines Sq. Ldr. K. R. Park, M.C., D.F.C.; No. 23 (Fighter) Sqdn Kenley, Gloster Gamecock (Bristol Jupiter engines), Sq. Ld A. G. Jones-Williams, M.C.; No. 32 (Fighter) Sqdn., Kenle Armstrong Siddeley Siskin (Jaguar engines), Sq. Ldr. R. Mansell, O.B.E.; No. 3 (Fighter) Sqdn., Biggin Hill, Hawk Woodcock (Bristol Jupiter engines), Sq. Ldr. E. D. Johnso A.F.C.; No. 17 (Fighter) Sqdn., Biggin Hill, Hawker Woo cock (Bristol Jupiter engines), Sq. Ldr. A. R. Arnold, D.S.C D.F.C.; No. 1 (Fighter) Sqdn., Northolt, Armstrong Siddel Siskin (Jaguar engines), Sq. Ldr. E. O. Grenfell, M.C D.F.C., A.F.C.; No. 41 (Fighter) Sqdn., Northolt, Armstro Siddeley Siskin (Jaguar engines), Sq. Ldr. F. Sowre D.S.O., M.C., D.F.C.; No. 25 (Fighter) Sqdn., Hawking Armstrong Siddeley Siskin (Jaguar engines), Sq. Ldr W. Park, M.C., D.F.C.; No. 43 (Fighter) Sqdn. Tangmere, Ar strong Siddeley Siskin (Jaguar engines), Sq. Ldr. C. Lowe, M.C.

Ground Defences : 1st A.A. Searchlight Btn. R.E., ne Redhill. Essex A.A. Searchlight Group, Hornchurc Surrey A.A. Searchlight Group, Kenley. Kent and Middl sex A.A. Searchlight Group, Biggin Hill. 26th A.A. Searc light Btn., Edenbridge. 27th A.A. Searchlight Btn., Orpin ton.

The Stations given in the above list are the tempora Stations of the Units for the period of the Exercises.

In order to get the fullest possible use of the telepho service the operations began each day at 18.00 hours a finished at 09.00 hours the following morning.

The Eastland Forces were employed in bombing operatio against London and the Westland Forces were employed the defence of London against bombing attacks. All bom ing attacks were assumed to be from the sea and all rai were planned on this assumption and all raiding aircra had to pass along the coast line outside the operational ar to the point of entry and likewise from the finishing poi of the raid. In view of the fact that certain bombi aerodromes were some distance to the West and a great de of time would have been lost in flying down to the coa they were allowed to proceed through the operational ar



A DAYLIGHT RAID.—A Flight of Fairey III.Fs (Napier Lion engines) of No. 207 (Bombing) Sqdn. on its way to attack a military objective in London.—(*"Aeroplane" photograph.*)

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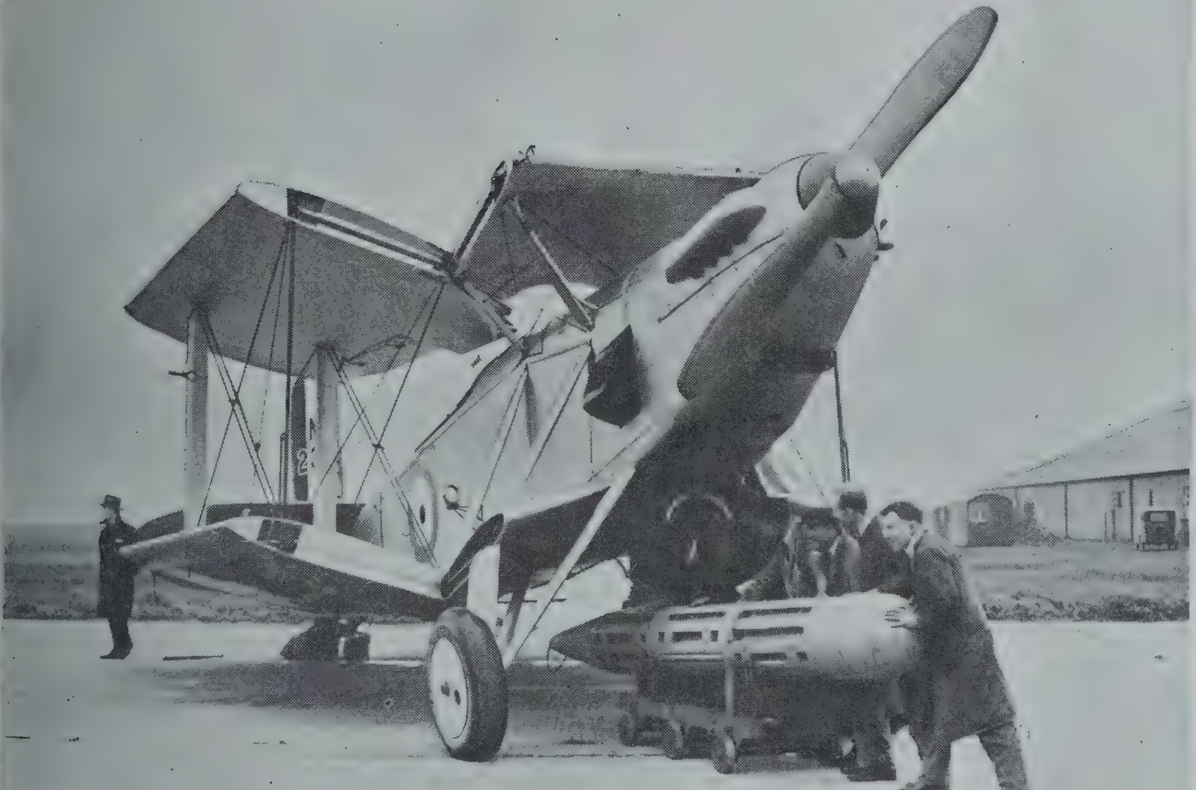
"The Aeroplane", May 23, 1928.



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to the coast before 18.00 hours and after 09.00 hours, or in other words the daylight hours during which the Exercises were not taking place.

THE ATTACKERS.

Air Vice Marshal Sir John Steel, K.B.E., C.M.G., C.B., Air Officer Commanding Wessex Bombing Area (Eastland), in an interview with the Press at his Headquarters at Andover, on the first day of the Exercises, gave an outline of the proposed operations of his Command. He explained that the ordinary year's training of the Wessex Bombing Area was mostly for the benefit of other people. The Bombing Squadrons were used for Displays, as targets for the Fighter Squadrons and the Ground Defences and for training Observer Posts. These Exercises were the first opportunity they had for doing their own job. The Command would have a freer hand this year than last year to work out their attacks.

They were handicapped to a certain extent by the necessity for safety and were taking a number of precautions during these Exercises which would not be possible in time of War. For example during these Exercises all aircraft working at night had to keep in constant W/T touch with Headquarters and in the event of the failure of the W/T set the machine had orders to land immediately. One of the advantages of this close W/T communication was that in the event of an aerodrome becoming unfit to land on owing to fog or other bad weather conditions during the absence of the Squadron, H.Q. would be in a position to warn the Squadron and give it instructions to land where the conditions were more favourable. To avoid risk of collisions in the air all the targets had been allotted by H.Q. Eastland. Raids had been arranged to avoid congestion over the objectives.

OTHER SAFETY PRECAUTIONS.

Another safety precaution was that bombing formations were, as far as possible, to avoid clouds when outside the operational area and over London. Bombing formations would be ordered to hold their course when attacked by fighters. At night Bombers would have to use navigation lights except when over 5,000 ft. on their inward journey. Responsibility of avoiding collision by night would rest with the bombers who would switch on their navigation lights if they saw Fighters approaching at such a direction and height that a collision was deemed possible. All aircraft flying over the sea had to keep within gliding distance of the coast and the Fighters were not allowed to attack the bombers over the sea.

In addition to all these regulations for the preservation of the bloodthirsty Eastland Forces, the Gunner in the rear cockpit of every bomber at night was armed with an electric torch and ordered to switch it on if he saw a Fighter coming too near. The Fighters anyhow were not allowed to approach the Bombers within 200 yards and not more than one Fighter was to attack a Bomber at a time. Presumably all these precautions were necessary although a number of them were not ordered last year but they certainly had the effect of bringing upon the Bombers the unofficial but nevertheless sev derision of the Fighters.

With regard to approaching and bombing the targets the orthodox methods were used. Day raids were carr out by flights or by squadrons and the targets were proached either by maintaining a fixed height, or by atta ing a maximum height and gaining speed by losing heig in a long steady dive towards the target, or by coming in l and climbing to a maximum height over the target. At nig all the bombing was done by single machines crossing zone at varying intervals.

Cameras were carried on all the daylight raids and pho graphs were taken of the run up to the targets and wh crossing the coast. Over the targets the Bombers had transmit W/T call signs and carry out normal *cam obscura* procedure. In addition day Bombers had to indic bombing by firing a red Very light over the target. Nig Bombers over their target had to show a steady white lig and flash their own W/T call sign on the downward rec nition light at the moment of dropping bombs.

During the periods when the Observer Corps was not oper ing, i.e., from 23.00 hours to 09.00 hours daily bombing a craft had to report their approximate position, height a course by W/T every ten minutes while they were in operational area. These reports had to comply with the f lowing conditions :—(i) number of aircraft in formation wi in 33% ; (ii) position within three miles ; (iii) height with 2,000 feet of the correct height and (iv) course within degrees. These reports were to serve as the Westland telligence system during the hours that their observers w not at work.

THE DEFENCE.

At the Headquarters of the Westland Command a rema able development and expansion has taken place since l year. Every branch of the Defence is steadily increasi and improving and the system of control is so simple and so comprehensive and elastic that were some warlike c tingency one day to eliminate the entire Headquarter St their successors could walk into the Operations Room a carry on the war with a minimum of confusion and del The system of control, communications and plotting a registration was originally described by Major-General E. Ashmore in a lecture at the Royal United Service Instituti on November, 1924, 1926. An outline of the system w given in THE AEROPLANE on July 27, 1927, and as the devel ment in the past year has been on the lines of details a as the Air Staff do not want the details published it is proposed to describe it here again. It is sufficient to say th the Defence Commander can sit in a chair in Operations room and watch the "enemy," illustrated discs and counters, approaching their objectives and kn their height and speed and numbers and can see his ord to his own Forces taking effect, his Squadrons going up, guns and searchlights coming into action and know results of these actions within a few minutes of their taki

IN FORMATION.—A day-bomber of No. 207 (Bombing) Sqdn. photographed from another machine in the same formation during a raid on a military objective in the London area.—(*" Aeroplane " photograph.*)

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place. He can see at a glance what forces he has at his disposal for immediate use, what forces he will be able to have within the time it takes to re-fuel and bomb up a machine and what forces are temporarily or permanently out of action. He can see at what speed the wind is blowing at varying heights over any given area and he can watch the weather over the whole of his operational area.

THE GROUND ORGANISATION.

The Observer Posts and Observer Centres were operating during the Exercises between 18.00 hours and 23.00 hours. This work is done by the Anti-Aircraft Observer Corps consisting of Special Constables stationed at various posts and in telephonic communication with Defence Headquarters.

The Searchlight positions were manned by the Territorial Anti-Aircraft Searchlight Units and by the 1st A.A. Searchlight Btn., R.E. The Exercises this year were occupying the second week of the normal annual camp of these Territorial Units and the detachments were camping out in the searchlight positions and therefore working under conditions approximating to those of active service.

The Gun Stations of the Defences were not manned owing to the fact that the Anti-Aircraft Artillery Units were away at their annual practice camp during the period of the Exercises. The effect of anti-aircraft fire was, however, taken into consideration by the umpires in assessing the results of the raids.

PUBLIC CO-OPERATION.

A number of people have expressed surprise that so much information about the Defence of London has been given to the Public through the Press. The explanation is that the Air Staff want the active co-operation of the Public in their efforts to defend the Public. Apart from the Observer Corps which is purely civilian there are the Auxiliary Squadrons of the R.A.F. and the Territorial Anti-Aircraft and Searchlight Units to be manned and brought up to strength. Later on a much wider field of civilian co-operation will be required. The issue of gas marks to the entire population of London and other industrial centres seems to be beyond the range of practicability but the organisation and mantenance of gas and bomb-proof shelters is undoubtedly a problem which will have to be faced.

There is not the slightest doubt that the R.A.F. has the goodwill and could at any time have the active co-operation of the majority of the population of this country (even the strange species that writes to the Air Ministry complaining about the noise of aeroplanes over its homes would cheerfully turn itself into a first-class observer in time of emergency) and by taking the Public into its confidence in this way the Defence Staff is paving the way to securing a wide field of national co-operation.

THE OFFICIAL NARRATIVES.

The following communiqués were issued at noon on day describing the Exercises of the previous day and ni They were compiled by the Narrative Staff at H.Q., A.D.G and form a summary of the operations from a neutral p of view. Intermediate communiqués were issued from t to time by the Narrative Staff to satisfy the demands various sections of the Press and in addition the Narra Staff were available on the telephone at any hour of the or night to any Press correspondent who required any a able information not contained in the communiqués.

Aug.

Before giving further details of the progress of the air exer it is desired to point out that in Peace exercises aircraft are shot down and umpires cannot decide which aeroplanes have destroyed until afterwards. Further, bombers officially shot d continue on their courses to the target, and a deceptive impres of the effectiveness of the defence is created, unless the umpire's sequent decision is taken into consideration.

For instance, during yesterday afternoon's operation a squadron three separate attacks by flights on Chelsea. Each flight was i cepted by overwhelming numbers of Fighters. The squadron seven machines out of a total of nine. The remainder were driven

On the other hand, another Squadron with very fast bombers a successful raid and lost only one machine through A.A. fire. took them only 28 minutes to come from Shoreham to their ta in East Ham. They dived through three layers of clouds and were intercepted on the way in. However, they were met by Fig and lost two machines on the way out. In spite of the clouds Observer Corps reported the daylight raids well. The Kent Obse were outstanding and gave very accurate information regarding progress and position of Bombers. The work of the three Auxil Squadrons was distinctly good.

During the night, 28 raids were made by large Bombers on va targets around London.

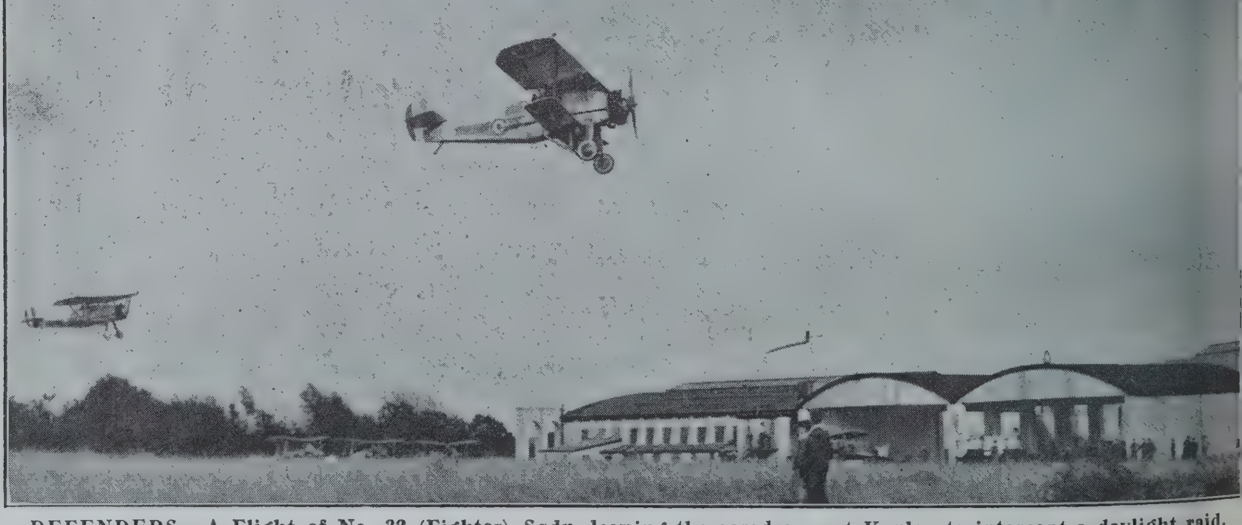
The Westland Commander sent up Fighters from Nos. 3, 17, 23 and 111 Sqdns. to intercept them.

The weather conditions in the neighbourhood of London were the whole good but deteriorated in the early hours of the mor There was local cloud. The wind was from 15 to 45 miles per from south-west. These conditions on the whole favoured the offe as the searchlights were frequently impeded by mist and c Where the weather conditions permitted the searchlights picked the Bombers promptly and held them well, enabling the Fig to attack them.

Twenty-two combats took place but the results are not yet a able and it is impossible to say at present how many raids were intercepted as certain of the raiders were attacked more than

Early this morning the Eastland Commander made another i sive attack on the London area. Nos. 11, 12, and 100 Sqdns. cro the Hampshire coast between 6 and 7 o'clock to attack the R. Stores Depot, Kidbrooke, and Chelsea. The County and City of Lo Auxiliary Sqdns. attacked Hornchurch and the Air Ministry. N attacked the Beckton Petrol Depot, crossing the coast at Harv No. 207 Sqdn. attacked Uxbridge, coming in via Southend.

The Westland Commander sent up the following 8 Squadrons—N 19, 25, 29, 32, 41, 43 and 56. Heavy fighting took place, but the



DEFENDERS.—A Flight of No. 32 (Fighter) Sqdn. leaving the aerodrome at Kenley to intercept a daylight raid.
—(*" Aeroplane " photograph.*)

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R.A.C.
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LEA-FRANCIS.

2nd Mr. L. Cushman,
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—also Fastest Time and Fastest Lap, all on

CASTROL

reports are not yet available. Some of the fighting took place at a height of 17,000 feet.

Aug. 15.

On Monday evening the Eastland Commander concentrated his attacks so that the whole of his forces converged on London from all sides. These attacks were fairly successful because a considerable proportion of the Squadrons coming from the South and West with a strong wind behind them and under the cover of clouds were able to evade the Westland Fighters on the way in, but this success was qualified by very heavy losses on the way home. 28 of the 70 bombers were shot down, including four by A.A. fire, whilst the Westland losses were 15 Fighters.

During the night a steady stream of heavy Bombers coming one at a time attacked selected targets. A good proportion of these raiders were picked up and held by the Searchlights with the result that more were attacked on the way in than during the daylight period. As a result a smaller proportion of bombers penetrated the defence without being intercepted. The losses were again heavy. 15 of the 29 raiders were brought down, including 3 by A.A. guns and only two of Westland's Fighters were lost.

The early morning raids of Aug. 14 were on a similar scale to those of the previous evening. There was more cloud, which hindered both sides. A larger proportion of the raiders were interecepted on the way in and consequently the bombing would have been less effective. 22 Bombers were destroyed, including 3 by A.A. fire, whilst 15 Fighters were destroyed.

Last night four Night Bombing Sqdns. continued their attacks upon similar lines to those of the previous night. In all 23 Bombing Aircraft took part. Rain and heavy cloud N. and N.E. of London interfered with the raids which were due to come in over Essex. No. 9 Sqdn. delivered six attacks on Chelsea Barracks. All were well held by the searchlights and all except one were attacked before they reached their objective. No. 7 Sqdn. attacked Croydon seven times. All except two were held by the searchlights from two to ten minutes and all but two were attacked by Fighters. No. 58 Sqdn. attacked Wormwood Scrubbs seven times. Five of these raids were held up by searchlights and only two escaped attack by Fighters.

The weather during this period was very favourable for the searchlights which was taken advantage of by the Territorial Searchlights, who again did excellent work.

Five squadrons were used by the defenders. Of these Nos. 23 and 32 Sqdns. were most useful in intercepting the raiders.

Early this morning another concentrated attack was made on London. The weather was fine to the south but still bad to the north with a strong wind from the South-West high up. Six Bombing Squadrons took part in the raids. Between 7 and 7.30 there was a concentration of nearly 50 raiding aircraft over the London area.

Nine Fighter Squadrons were employed in the defence and very heavy fighting took place on the outskirts of London.

Nos. 1, 25, 29, 32, 43 and 56 Sqdns. report having been in action but no definite results can yet be given.

Aug. 16.

During the night raids by heavy bombers belonging to four Squadrons were continued. The weather in the main favoured the defence, visibility being generally good with the exception of the Thames Valley and to the North. There was a layer of broken clouds from 3,000 to 10,000 feet up and a wind of 30 m.p.h. from the West at high altitudes.

Good plotting by ground observers and skilful handling of the searchlights resulted in 24 of the 29 raiders being discovered.

No. 99 Sqdn., attacking to the North of the Thames, where the weather was least favourable to the defence, was the most successful of the raiders as two of the six machines employed reached the target without being caught by searchlights or fighters.

No. 32 (Fighter) Sqdn. reported that they had no less than 20 fights with bombers during the night. 22 of the 29 raiders in all were attacked by fighters. In addition the A.A. gunners were active the umpires' verdicts are not yet available.

Early this morning Eastland made another concentrated attack London with 7 Squadrons of day bombers. The weather was ma fair with a layer of broken cloud from 5,000 to 10,000 feet Visibility was good on the whole except in the Thames Valley the wind was light. 8 fighter squadrons were sent up and interce a proportion of the raiders before the latter had arrived over t targets.

No. 12 Sqdn. with fast Fox day bombers was intercepted this by two squadrons South of London when on the way in. No Sqdn., whose objective was Uxbridge, was attacked six times in half being on the way in.

Aug.

At 9 o'clock last night the first night bombers were reported to crossed the coast of Essex and Kent in the final stage of the op tions. There was only a light wind near the ground and so obser were able to hear approaching raiders clearly; adequate warning therefore available. There was in places a layer of clouds at a 4,000 feet varying in thickness, which tended to hinder the work of searchlights. Where the clouds were sufficiently thin the raiders fl above them could be seen by fighters still higher up against the p of clouds lit up by searchlights from below.

Of the four Fighter Squadrons sent up by the defence No was the most successful in intercepting raiders, and by 11 o'c had had 9 combats. In all 18 fights were reported and a majo of the bombers who reached the zone of operations by the the exercises were stopped were attacked.

At about 11 o'clock low clouds became prevalent in the searchl area and as these conditions were dangerous for attack by fighters bombers and as searchlights and night bombers had had ample in the three previous nights the A.O.C. in C. decided to termi the exercises at once instead of allowing them to continue to 1 as had been announced previously.

The official summary of the Exercises issued on Aug. is as follows :—

(1) During the Air Exercises which have just come to an approximately 250,000 miles were flown by aircraft taking part. only mishap involving injury occurred to a pilot of a Fighter w turned over. He suffered minor injuries to his nose.

(2) The total weight of bombs which could have been carried bombers was nearly 202 tons. This is without making deductions those whom the umpires judged to have been shot down before re ing the objectives.

(3) By day clouds and strong winds high up favoured the bom on the whole, particularly those approaching the targets from south and west with the wind behind them.

(4) The Day Bombers made in all 57 raids. These were atta 39 times on the way in and 37 times on the way out. Only raids succeeded in evading the Defence both ways. One hun and fifty-one Day Bombers were adjudged to have been brought d by Fighters, and 20 by anti-aircraft, while 139 Fighters were los

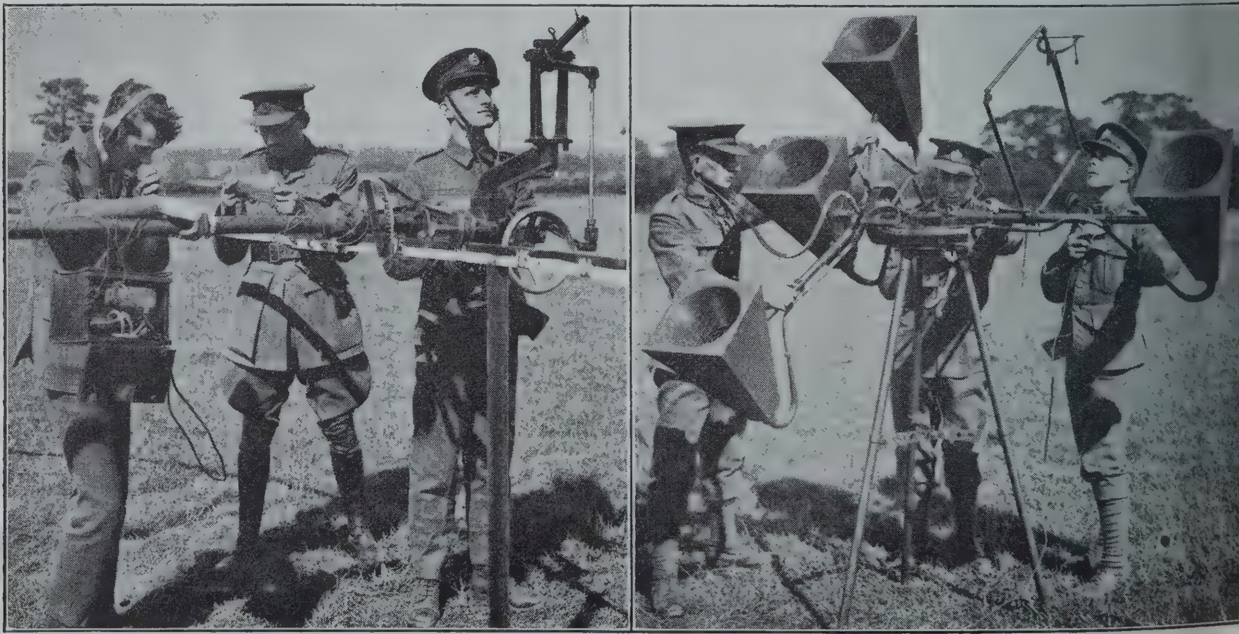
(5) In the operations after dark the weather so favoured the def on three of the four nights that a very large percentage of bom were intercepted.

(6) The interception of bombers by fighters has shown a dec improvement since last year, as did the standard of air pilo and the use of clouds by bombers.

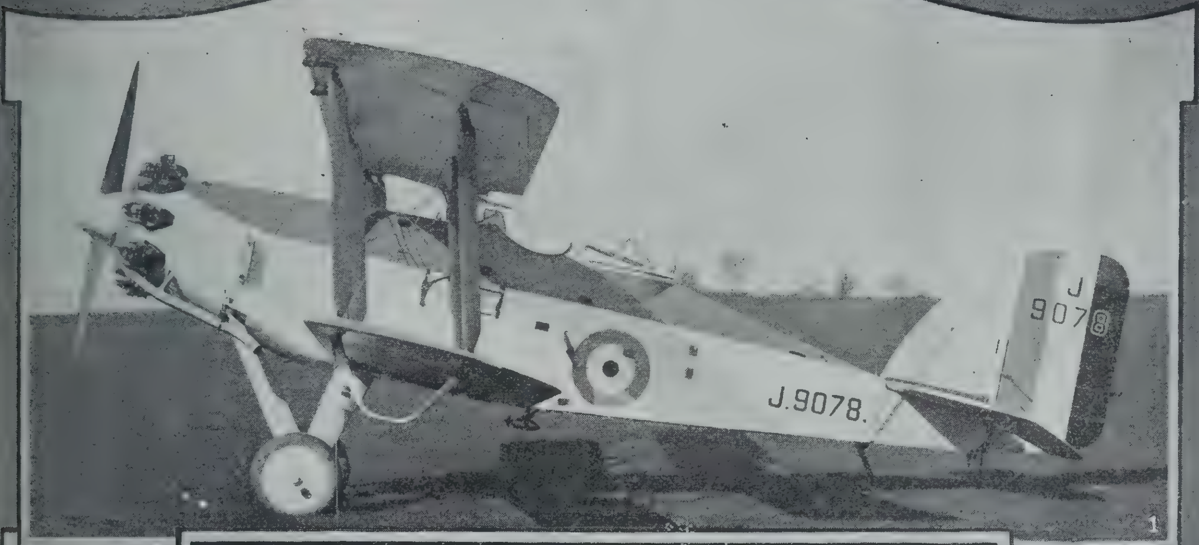
(7) The Auxiliary and Cadre Squadrons played an important creditably in the first exercises in which they have co-operated, invaluable work was done by the Observer Corps and Searchligh

(8) The Air Officer Commanding-in-Chief, Air Defences, Great Bri is very satisfied with the efficiency shown by all units. The exer were not designed to test the efficiency of the London defences, mainly to test the operational efficiency of individual units.

(9) In conclusion thanks are due to those who kindly allowed sea



GROUND DEFENCES.—On the left is the controlling section of one of the mobile searchlights of the Anti-Aircraft Territorial Defence Formations, and on the right is one of the listening posts which direct the operations of the searchlights.



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The machine was a Standard G Type Moth with the new 85/100 h.p. de Havilland Gipsy engine.

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24 HOURS

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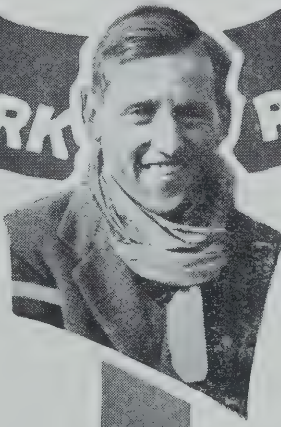


By establishing the duration record for light aeroplanes on Thursday and Friday last, the wonderful new Gipsy Moth has now stamped itself indelibly with the seals of superiority. To its credit goes the zenith of performance in speed, climb, and in durability Evidence once again that Moth is "The Best Light Aeroplane in the World."

GIPSY MOTH

lights to be erected within their grounds and to those civilians who looked after the flares on the emergency landing grounds.

SEEING THE WAR.

The arrangements made by the Air Ministry to assist the Press to understand and describe the Exercises were even more generous this year than last. Any number of correspondents were allowed to go round the stations, targets and observer centres and a number of photographers were allowed to accompany the raids in Service machines. The available flights in machines by day or by night for correspondents always exceeded the demand. The only restriction laid upon the Press was that they were not to visit any Station or post without one of the six Press Conducting Officers who had been detailed for this duty. As a matter of fact this "restriction" was all to the advantage of the Press because the Press Conducting Officers did their work so well that no questions remained unanswered and difficulties and obstructions melted away. Even traffic blocks dissolved in the magic presence of an R.A.F. uniform plus a scarlet armlet marked "Umpiring Staff." Even a point-duty policeman has not the nerve to try and stop anything that looks so vitally important.

It was obviously impossible to visit every station and post working in the Exercises and arrangements were therefore made for certain typical centres to be visited by parties of Press representatives. After going to the Headquarters at Andover and Uxbridge the work of which I have already described we went to the Duke of York's Headquarters at Chelsea to watch the work of a target and some of the daylight raids.

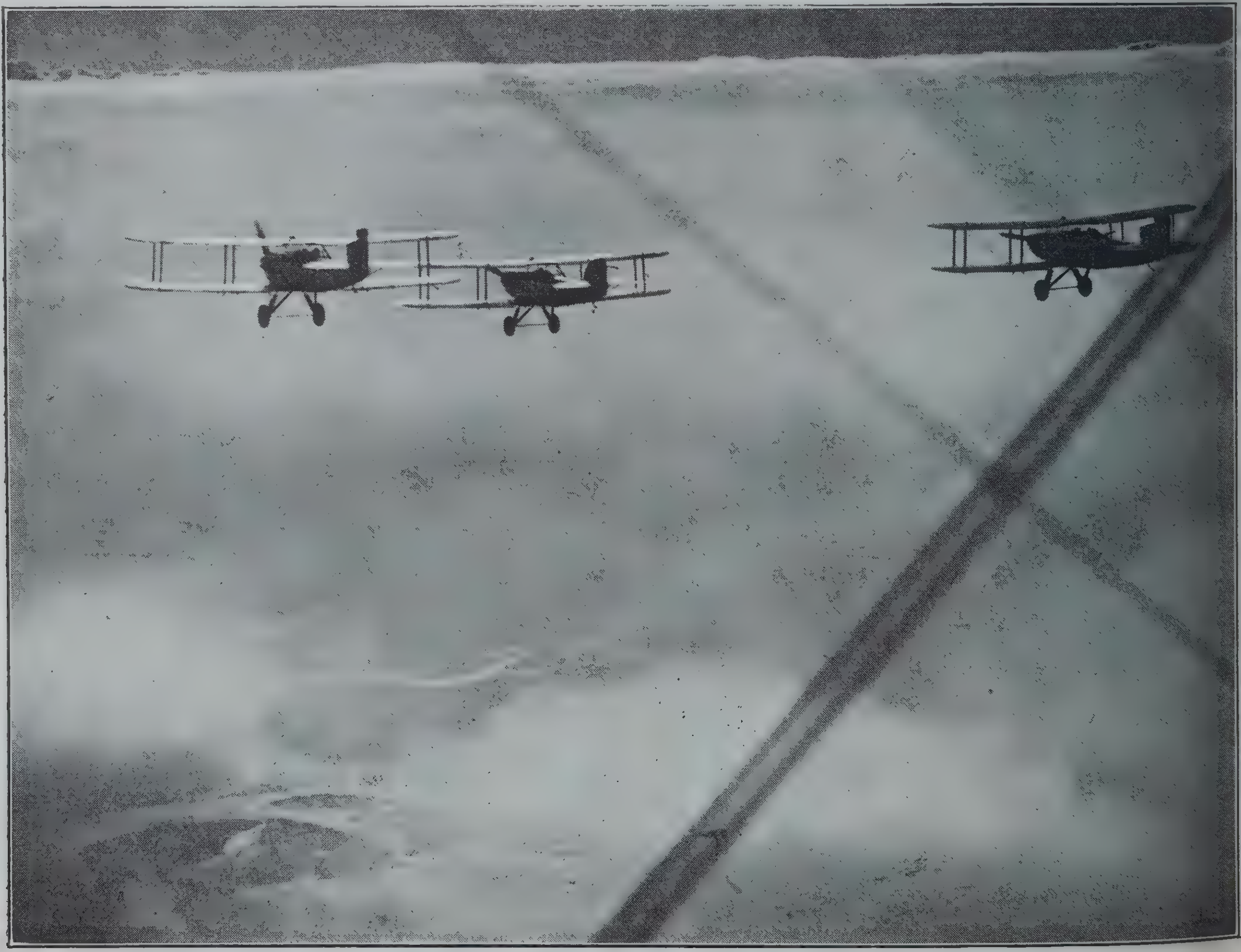
There was a certain amount of light cloud about and the first thing we saw was a Squadron formation of Horsleys being pursued by a Squadron of Siskins right over the target. They disappeared into the clouds and a Flight of Fairey III.Fs approached the target. They sailed over at about 6,000 ft. and signalled a hit. Various other flights appeared and disappeared in the sky and then a Squadron formation of D.H.9as (No. 39 Squadron probably) came over very low down. The A.A. gunners' Umpire registered a claim to have shot down the whole Squadron but as his judgment of their height was 1,000 ft. higher than the judgment of various R.A.F. people standing round, his imaginary guns probably did not score a hit. A certain amount of diversion was caused by a humorist inviting the Press representatives to "have their fortunes told" in the *camera obscura* wigwam. A lone Siskin was then spotted followin the D.H.9a Squadron. They evidently did not see him, an after a bit he overhauled them and pounced on a straggle and obviously knocked him out. What the rest of th Squadron did to the Siskin was lost in the clouds.

A FIGHTER STATION.

From Chelsea we pushed on to Kenley, where No. 2 Squadron and No. 32 Squadron were doing both day an night flying. No. 32 was standing by for the night attack before midnight, and No. 23 were getting ready for th from-midnight-onwards part of the show. Both Squadron were lined up on the tarmac, and there was a tremendou atmosphere of "War" about. On the first night of th Exercises Kenley had to work from orders from Fightin Area, and apparently there had been a certain amount o delay in the communications. On the subsequent night the Squadrons operated under orders from Station H.Q

The Squadrons have built up their own systems of interna communications and procedure. Blackboards in the pilots rooms show the duty order of the Flights and the Fligh next for duty was ready waiting in flying kit. In on Squadron the order to go is given by lighting Holt flare on the tarmac by a switch in the pilots' room, and in th other Squadron a kind of flaming hand grenade is throw out of a window onto the tarmac. The Holt flare syste was particularly effective when the order to take off cam through while some air correspondents were leaning negligently against the framework to which the flares wer fitted. The air correspondents took off in great style! Th Holt flare system has also been adopted for use betwee the watch tower and the sick quarters, with the result tha if an accident happens on the aerodrome while night flyin is in progress the officer of the watch presses a butto which lights a Holt flare outside the sick quarters and, a somebody unjustly said, "wakes the doctor." In th pilots' room the pilots do not wait for orders when the alar goes off. While they are getting into their machines th engines are being started and order cards are being fille in and handed to runners who take them out to the machines. In this way the pilots get into the air in somethin under three minutes from the first warning.

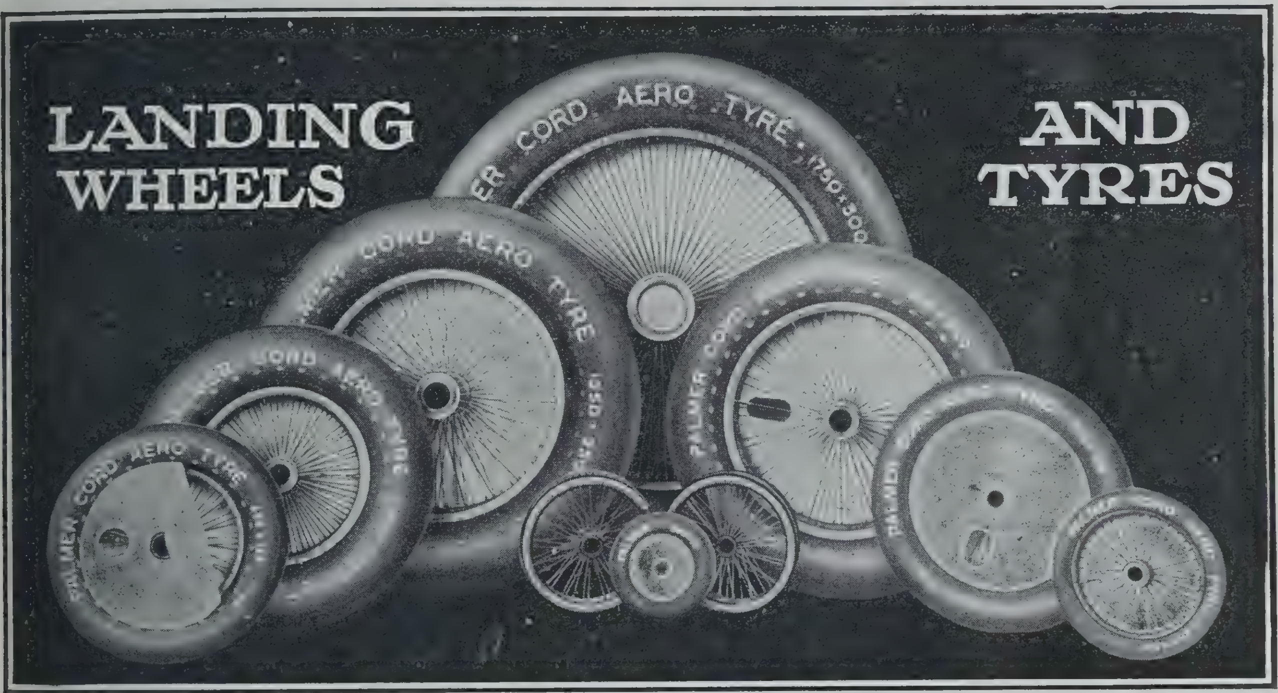
The only thing that one can find against the syste is that it would be quite impracticable in time o war. Fireworks all over an aerodrome are all very wel in peace time, but they do tend to give away the locatio



A CLOUD LAYER.—Day bombers at 15,000 ft. during an attack on the Air Defence of London.

—("*Aeroplane*" photograph.)

PALMER



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450×60	30	89.	31.75	Central
"	172	130.	38.09	Central
575×60	21	160.	28.	Central
"	180	150.	38.09	104/46
"	186	120.	34.92	Central
"	90	150.	38.09	Central
650×65	78	178.	44.45	132 46
"	79	178.	44.45	Central
"	100	178.	38.09	132/46
"	101	178.	31.75	132 46
600×75	21	160.	28.	Central
"	180	150.	38.09	104/46
"	186	120.	34.92	Central
"	190	150.	38.09	Central
700×75	78	178.	44.45	132/46
"	79	178.	44.45	Central
"	100	178.	38.09	132/46
"	101	178.	31.75	132/46
700×100	77	178.	44.45	132/46
"	92	185.	55.	135/50
"	95	185.	55.	Central
"	99	178.	38.89	132 46
700×100	112	150.	38.09	Central
"	176	178.	44.45	Central
"	179	178.	55.	132/46
650×125	119	178.	55.	132/46
"	147	178.	55.	Central
"	188	120.	34.92	Central
750×125	77	178.	44.45	132/46
"	92	185.	55.	135/50
"	95	185.	55.	Central
"	99	178.	38.89	132/46
"	112	150.	38.09	Central
"	176	178.	44.45	Central
"	179	178.	55.	132/46
800×150	161*	185.	55.	135/50
"	162*	185.	55.	Central
"	163*	185.	66.67	135/50
"	169†	185.	55.	135/50
"	177	185.	55.	135/50
"	183	185.	55.	Central
"	211*	185.	60.32	135/50
1000×150	167	185.	55.	125/60
"	174	250.	80.	Central
"	182	185.	55.	Central
"	187	220.	66.67	Central
"	201	185.	60.32	125 60
1000×150	210	185.	60.32	Central
1000×180	148	220.	80.	Central
"	149	185.	55.	Central
"	155	220.	66.67	Central
"	166	185.	55.	125/60
900×200	107	185.	55.	Central
"	108	185.	55.	125/60
"	128	220.	66.67	Central
"	137	250.	80.	Central
"	157	185.	80.	Central
"	202	185.	60.32	Central
1100×220	134	220.	66.67	Central
"	136	250.	80.	Central
975×225	192	185.	60.32	Central
"	194	185.	55.	125/60
1250×250	133	250.	80.	Central
"	154	304.8	101.6	Central
1500×300	115	304.8	101.6	Central
"	126	304.8	152.4	Central
1750×300	139	400.	152.4	Central
"	191	350.	150.3	Central
1750×350	193	400.	125.	Central

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of the defence in time of War. *"C'est magnifique mais ce n'est pas la guerre!"*

In the operations' room at Kenley we saw the system of co-ordination between H.Q. and the Observer Centres, and in another room we heard the R/T messages between Station H.Q. and the Fighter Squadrons in the air. Fortunately for the sensitive natures of the Press representatives the remarks of the pilots had by this time been firmly restricted to acknowledging orders and other strictly official business, although one gathered that on previous nights the running commentary on affairs in general broadcast by those pilots whose machines had been newly equipped with R/T, and who were therefore unaware of the publicity of their remarks, had caused the representatives of certain of the more respectable journals to "pass out."

Presumably the two Squadrons at Kenley are typical of the Fighter Squadrons in the whole of the R.A.F. The keenness and efficiency of all ranks is plainly reflected in the work of the Squadrons. It does not require much intelligence to realise what lies behind these formations pushing up into the air with the regularity of clockwork and within two or three minutes of the word "go." Unlike the Bombing Squadrons, the Aircraftmen do not get a chance to go up in the machines until they become pilots themselves, but only the magnificent ground work and the fact that every man in the Squadron is "full-out" could make such flying possible.

WITH NO. 9 (BOMBING) SQUADRON.

On the third night of the Exercises one was taken on a night raid in a Vickers Virginia belonging to No. 9 (Bombing) Squadron. As "Passengers" do not exist in the Wessex Bombing Area one was presumably either an air gunner or useful load, though useless load seems more like it. Also, if it were not ill-mannered to criticise the accommodation provided by one's hosts, one might venture to suggest that, as far as the rear cockpit of a Virginia is concerned, the expression "comfort" is superfluous.

We took off at 22.00 hours and flew out to sea. There were patches of cloud at about 5,000 ft. and a slight ground mist. About four miles out to sea we flew along the coast, gaining height as far as Whitstable, where we crossed the coast at about 7,000 ft We flew due west on a course north of Maidstone and Sevenoaks. We turned north over Brasted, and leaving Biggin Hill to port made for Kidbrooke, our objective. Shortly after leaving the coast we were overhauled and passed by another Virginia from the same Squadron flying at 8,000 ft. Ten miles from the sector boundary, which is in the neighbourhood of Maidstone, we extinguished our navigation lights.

From 23.00 hours onward, the Observer Corps having closed down, we were sending W/T messages at ten-minute intervals giving height, time and map-square letter for the benefit of the Eastland intelligence. At 23.32 hours the searchlights, after scraping round the sky for several minutes, picked us up and by passing us along from one group to another held us for 16 minutes. During this time we were attacked three times by Fighters. The display of "frightfulness" by the Fighters was very much hampered by the regulations which did not allow them to come within 200 yards of us. In fact they did not seem to come within 500 yards at all, although no doubt they claimed us as victims. The only one that came within range could easily have been shot down by our rear gunner. We also saw one Fighter fly into the balloon barrage. The searchlights had an easier time this year because the night-bombers had to fly a straight course and were not allowed to try and dodge them by changing height and direction.

Over Kidbrooke we switched on the downward recognition light and signalled our call sign to the umpires below to indicate that Kidbrooke had gone up in a cloud of smoke, and turned round and headed for home. We steered straight for Biggin Hill to avoid the balloon barrage, and then returned on our outward course. Over Manston we came down in a steep spiral and made a perfect landing without wing-tip flares.

For the benefit of those who have not done any night-flying it should be explained that with a ground mist wing-tip flares make it impossible to judge the distance from the ground. In these circumstances the pilot judges his height by the size of the landing flares on the aerodrome.—C. M. MCA.

WITH NO. 207 (BOMBING) SQUADRON.

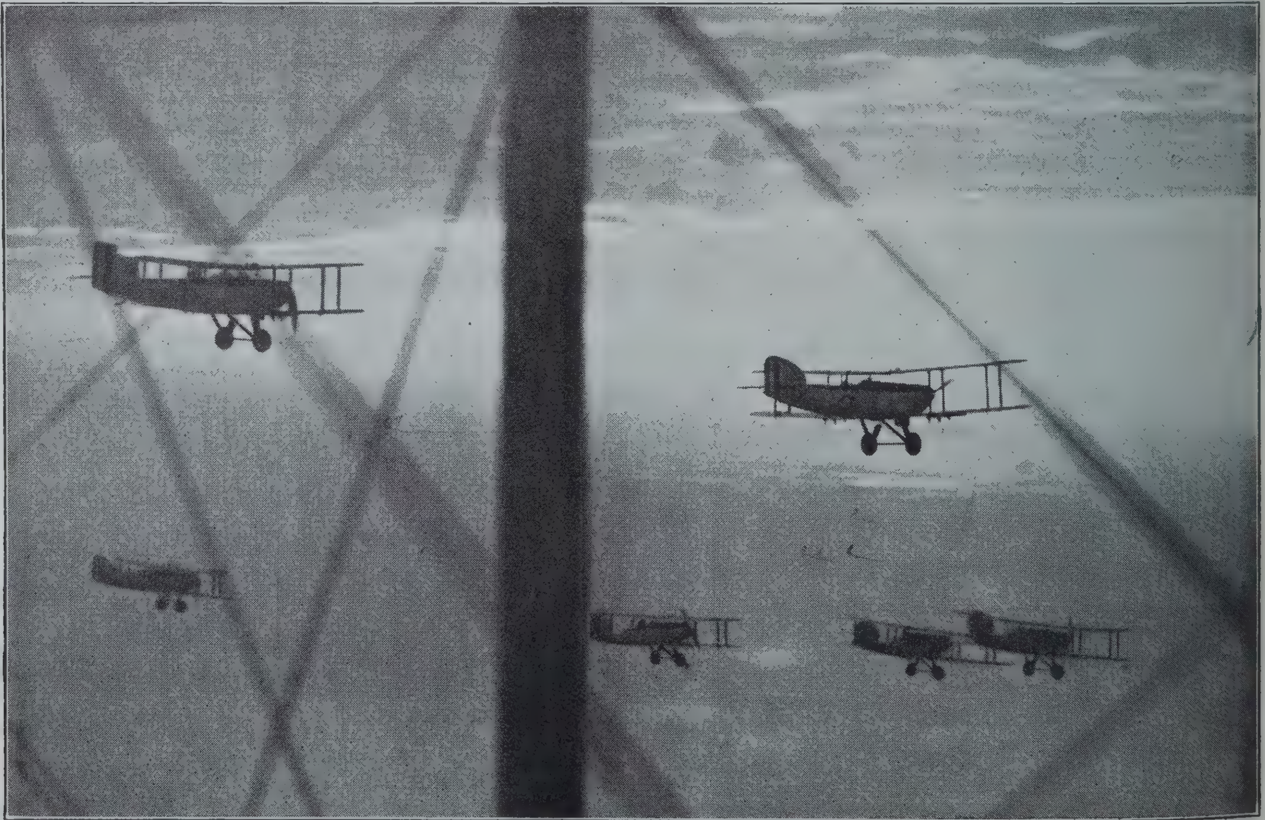
In the two daylight raids described herewith, the points, as far as could be observed, were fairly evenly divided. Perhaps, there was a slight margin in favour of the "enemy," but as one was privileged to accompany the "enemy" (207 Sqdn.—Fairey III.Fs) on the two occasions, this judgment may be regarded as not too impartial.

We took off in flights from Eastchurch Aerodrome at 17.10 hrs., formed up in squadron formation at a height of 2,000 ft., and then climbed to 5,500 ft. before heading out to sea. We left the Mouth of the Medway and setting a course over the sea passed over Shoeburyness, and Clacton still climbing.

By the time we had reached a point level with Walton we had reached a height of 9,500 ft., and at 18.00 hrs. we turned inland and began operations. The weather at this point was bright and fairly clear, visibility along the coast being very good, but it was obvious that the conditions inland were not so pleasant. A large area of what could be described as filth lay ahead and the mouth of the Thames was not visible.

We passed over Maldon and Billericay, and continued on a course which would take us over Romford, West Ham and the City, but for a full thirty-five minutes after crossing the coast, we saw no signs of the defence aircraft.

However, the personnel of the squadron were very much on the alert and the first intimation of trouble that one re-



DAYBREAK.—No. 207 (Bombing) Sqdn. at 15,000 ft. on an early morning raid on London.—("Aeroplane" photograph.)

Light Aeroplane

ENDURANCE RECORD ON

SHELL PETROL

Captain Hubert Broad, flying a De Havilland Moth, has broken the World's Endurance Record for Light Aeroplanes by remaining in the air for 24 hours.

He used Shell Petrol throughout this flight.

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SHELL PETROL

ceived was from watching the air gunners bringing their camera guns into action.

We were now over Romford at a height of 8,000 ft. and nine little Siskins "all in a row" were sitting just above and behind us in a most alarming manner. Although they were above us and we were the bigger machines, there was something in their quietly confident attitude that suggested the farmer with a big stick and the little boy with a pocket full of apples. We put on speed, but it was a little late and the Siskins dived at us in flights—getting uncomfortably close at times—and proceeded to shoot us down.

Before we had gone very far, another squadron of Siskins appeared on our port side and joined in the fun.

The air gunners of 207 Sqdn. were being kept very busy at this period but could undoubtedly have accounted for some of the attacking aircraft, who were apparently having the time of their lives and regarding us as "easy meat."

At 18.45 hrs. we were over Central London and sparing the Editorial offices of THE AEROPLANE by about a mile to the starboard we turned over our target—the Duke of York's Headquarters—at 18.50 hrs. at a height of 7,000 ft.

Assuming that the leading flight of III.Fs had evaded the Siskins, it can be taken that the objective was successfully "bombed."

After this, a course, due East, was set and we made for home with the least possible delay. The fighters were still worrying, but not in quite so determined a fashion as previously. This was probably due to the fact that they considered us well out of action. We landed at Eastchurch at 19.10 hrs.

The following morning our objective was Uxbridge and at 05.00 hrs. the nine III.Fs took off from Eastchurch. The weather at this cheerless hour promised to be fine and clear and so a considerable height was indicated.

We climbed steadily to a height of 15,500 ft., but long before this we passed over clouds which were at various altitudes from 7,000 ft. to 13,000 ft. At 15,500 ft. the thermometers on the struts showed ten degrees of frost, but everyone seemed to be quite happy and comfortable, thanks to the clothing and equipment supplied for such occasions. At this height the ground was entirely obscured by heavy clouds and at 06.00 hrs. we turned our backs on the glorious spectacle of the sun just rising over the edge of the cloud horizon and headed West for London.

As far as one could tell from very occasional glimpses of the ground through the cloudbanks, we proceeded on a course approximately the same as flown the previous evening. After a few miles we dived through an opening to find that there was another cloudbank at about 7,000 ft. We continued flying just above this until about 06.25 hrs., when we dived through another opening and came out over the Hornchurch district.

The pilots and air gunners, in view of the previous evening's experience, were evidently expecting interception at this point, but as far as one could see no other aircraft were in sight and we continued our way unharassed.

By making use of the clouds and thanks to the possibility of ground observers' ears not functioning quite so well a such an early hour we arrived over central London at 06.3 hrs., complete and undamaged.

The visibility was now extremely good and from the E.C district, our target could easily be seen. Taking a lin across Regent's Park, Paddington and Willesden, and flying in a very slight dive, we arrived over Hillingdon House Uxbridge, at 06.40 hrs.

As we turned over Uxbridge a squadron of defending air craft could be seen getting off from Northolt Aerodrome There seemed little likelihood of them catching us, but ther was still a possibility of interception from the North Weald–Hornchurch sector.

However, at a point somewhere between Highgate an Walthamstow, the squadron started to dive and the slip stream increased furiously. Looking back, one could see squadron of Siskins in full cry after us. If this was th squadron we saw take off from Northolt, they did extremel well to reach our altitude in so short a time. Although the had gained our height, they were still a long way behind, an quite out of gun range. Nevertheless, the air gunners o 207 Sqdn. were taking no chances and had their camera guns in readiness despite the discomfort of standing up in a 16 m.p.h. slipstream.

With our object accomplished there was no need to sto and fight and so with tails well up we made a bee lin for Sheppey. Although the thing of first importance was t get away with all haste, the squadron maintained its formation excellently. One machine, apparently experiencin some slight trouble dropped behind and fell a victim to th pursuing Siskins. This might easily have caused a fight i real war, but there was no need for a change of plans unde the circumstances.

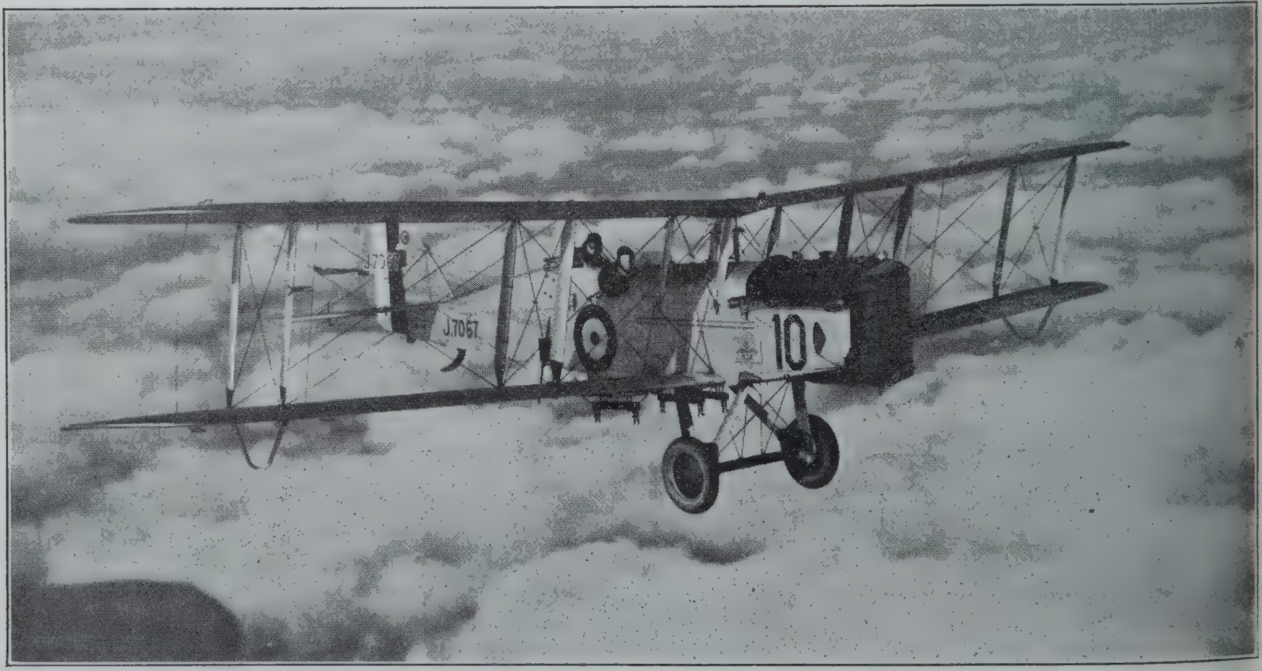
Apart from this one casualty, the remainder of the squadro got away in a most exhilarating fashion and our speed was reduced after a few minutes of the chase to 140 m.p.h., there by leaving us, at least, another 20 m.p.h. in hand, in cas of need.

Having well and truly bombed the Headquarters of th London defence and wagged a merry tail at the defenders the squadron arrived back safely and landed at Eastchurc at 07.20 hrs.—C. A. S.

THE AUXILIARY AIR FORCE.

Three Squadrons of the Auxiliary Air Force took part i the Exercises this year for the first time. No. 600 (County o London) Sqdn., and No. 601 (City of London) Sqdn. operate from Lympne and No. 605 (County of Warwick) Sqdn. from Manston.

All three Squadrons were equipped with D.H.9as an manned by Auxiliary pilots and observers and took an equa part in the daylight raids with the Regular Squadrons Throughout the Exercises the Auxiliary Squadrons won th unstinted praise of the Regular Units. Their keenness an energy has resulted in a high standard of efficiency and al ranks are to be congratulated on the part they have played The machines were maintained in first-class order, the forma



AN OLD WARRIOR.—A D.H.9a (Liberty engine) of No. 39 (Bombing) Sqdn. flying through the clouds. No. 39 Sqdn. was the only regular Squadron using these machines in the Air Exercises this year.

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tions were good and the navigation and camera-gun work were above the average. If no other useful result comes from these Exercises they should at least lead to the rapid expansion of this valuable and economical branch of the Service. The time is now ripe for the development of the Auxiliary Air Force. "That flying feeling" is rampant among the best type of young man of to-day, and they cannot all make the R.A.F. a whole-time career. The Flying Clubs are not enough. Rifle Clubs were not good enough for the generation which joined the Yeomanry. The Yeomanry Regiments are nearly all disbanded and the Auxiliary Air Force is there to fill the gap. But the Auriliary Squadrons are rapidly getting up to strength and more Squadrons should be formed without delay. According to Air Publication 968 of 1925 *Regulations for the Auxiliary Air Force and County Associations* Chapter 1, par. 2 and 3 "Units will be furnished by such districts and localities in Great Britain as may be decided upon. The allocation of headquarters and of units to counties and their distribution within counties will be fixed by the Air Ministry in consultation with county associations." At the present moment there are only 5 Auxiliary Squadrons in the country but with a slight alteration in the regulations it should be possible to raise 20 within the next few years. With regard to the commissioned ranks at present a man must have a pilot's "A" licence before he can become a General Duties Officer in the Auxiliary Air Force. If he is accepted he can get the cost of his flying training refunded up to a certain sum. And yet in nearly every case these "A" Licence pilots, when they join their Units, have to be trained from the beginning again before they can fly Service types. Throwing open the commissioned ranks to selected candidates without "A" licences would not only save the country the cost of refunding their training fees but would save the instructors the time now spent in correcting errors in training.

With regard to the Other Ranks experience has proved that they are as keen as the officers. But at present they cannot become pilots. If the Other Ranks were eligible for training as pilots there would be no difficulty in recruiting sufficient numbers to man the additional squadrons. Every man who handles an aeroplane wants a chance to fly it.

A Parachute Escape.

During the evening operations on Aug. 16, one of the Siskins of No. 1 (Fighter) Sqdn. caught fire in the air and Flg. Off. L. C. Bennett, the pilot, left the machine by parachute and alighted safely on the roof of a house at Kew. The machine fell into Kew Gardens and was completely wrecked.

A Few Comments.

The General Public, aided and abetted by the Press, have fallen into the error of believing that these Exercises were to test the Defence of London. Official statements made it perfectly clear from the beginning that the Exercises were to test the efficiency of individual Units of A.D.G.B.

It is therefore inappropriate to discuss whether the Defences of London are effective or not. It is merely futile to try and judge what would happen in War by what happened in these Exercises. War conditions did not prevail in any Unit in either Command. The aerodromes were lit up and the machines were lit up (no, the pilots were not lit up). The ether was full of wireless talk. The operation rooms were vulnerable temporary structures instead of being buried somewhere in the bowels of the earth. The Bombing Squadrons were neither loaded nor armed and therefore their range with full equipment could not be gauged. The Fighter Squadrons also were unarmed and took off at night in a blaze of fireworks.

The Special Constables who manned the Observer Posts and centres were, to a large extent, young men who would have more important work to do in time of War. There seems to be no obvious reason why the Observer Corps should not be composed of women. The only argument against it seems to be the early-Victorian idea that women talk more than men and therefore might disclose the secrets to a potential enemy. Even if this assumption were true, and nobody who has ever been into (a) a man's club and (b) a woman's club believes it, there is nothing about the Observer Corps that could not be discovered by an intelligent investigator in a wet afternoon.

What it is appropriate to discuss with regard to these exercises is the size and equipment of the Royal Air Force. The R.A.F. obviously needs faster Fighters. Our newest day-bombers got away from the Fighters every time. (Not forgetting No. 23 Squadron's claim to have been the only Fighter Squadron to have caught a Squadron of Foxes.) There also seems to be a feeling particularly among War-time pilots that we ought to have two-seater Fighters. Our Night-Bombers are far to slow and not sufficiently manœuvrable. Fully loaded and with enough fuel for a long distance raid they would be "cold meat" for any defence force.

Considering what the Treasury is saving on the Observ Corps, which costs practically nothing, and the Auxilia Air Force, which costs comparatively little, the Governme really ought to splash a lot more on the Regular Air Forc

C. M. Mc

A Pious Comment.

The following appeared as a short leader in one of the mo important of the daily papers on Aug. 17:—

> In the opinion of some people the most dreadful thing to be se in London to-day was the newspaper placard bearing the wo printed in blood-red type, "How I Bombed London, by a Woma Their repugnance was not due to any sentimental idea that bombi a city was no job for a woman, since it is quite as obviously job for a man. But there is horror in the thought of a woman ope ing the way for her sex into the field of warfare, mimic or real
>
> Probably there were ardent advocates of equality between the se who felt when they saw the placard that women were about to remo another restriction on their activities, not realising that what t world needs to-day is a limitation of armour-bearers as well as armaments.
>
> The air raids this week have made London realise the helplessn of the civilian population so clearly that no one will welcome t suggestion, however slight, that the bombing raiders may in futu be recruited from both sexes. The enterprising woman who to-d secured a place in one of the bombing planes is said to have been flight commander in the Women's Royal Air Force during the w None of the women members of that force shared in the aerial c flicts, but some of them held rank equivalent to that of a fli commander.

The opinions expressed in some newspaper commentari at times passes all comprehension. No one would think transcribing an ordinary night flight made during manœuvr by either man or woman into "How I bombed London unless such transcription was called for by the news edit to pander to the tastes of the average newsheet reader. A no civilian "bomber" would be allowed to fly during ma œuvres unless the said bomber was a representative the press appointed to obtain copy, livid or otherwise, f the mastication and indigestion of the news-reading publ

Most newspapers now boast of their own "Air C respondents" and all were invited to go into the air som time during the manœuvres. While the fact that one wom bombing the "Air Correspondents" who spend so much ti warming up air and then writing about it with their hats in the comfort of their own homes within the beleaguered a was considered to be horrible no one seemed to think th a few "Air Correspondents" bombing London's fem population, minus one, was anything very dreadful.—L. B.

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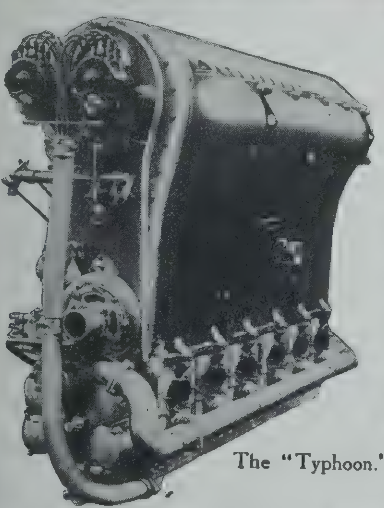

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THE NATIONAL AIR TOUR.

Between June 30 and July 28 the fourth annual National Air Tour was held over the Middle West, South-West Pacific Coast and North-West sections of the United States, the actual tour covering a distance of approximately 6,300 miles. Thirty-two cities were visited, at the more important of which stays of more than one day were made. The route was as follows :—Detroit, Indianapolis, St. Louis, Springfield, Wichita, Tulsa, Forth Worth, Waco, San Antonio, Marfa, El Paso, Tucson, Yuma, San Diego, Los Angeles, Fresno, San Francisco, Corning, Medford, Portland, Tacoma, Washington, Spokane, Missoula, Great Falls, Froid, Minot, Fargo, St. Paul, Wausau, Milwaukee, Chicago, Battle Creek and Detroit.

The competition was essentially one of commercial efficiency and reliability, and the scoring was based on an intricate formula which took into consideration weight carried per horse power, landing and take-off times, speed, engine displacement, and the time taken to cover each leg of the route.

On June 28 and 29 a qualifying competition was held at the Ford Airport, Detroit, at which all competing aircraft had to submit to certain tests in order to arrive at a contest figure of merit which formed the basis for the ultimate scoring during the competition proper. These including the weighing of machine, pilot and contest pay load, the determination of the maximum and the 80 per cent. maximum speeds of the machines, the latter figure being the lowest permitted to maintain a perfect score, the measuring of the distances required to take-off and pull up on landing and the general checking over of entries to see that they conformed to the Department of Commerce regulations.

In all, twenty-five commercial aircraft started from Detroit on June 30 out of the original entry list of twenty-nine, the following being the starters with their contest numbers and pilots : 1, Bellanca C.H. (Whirlwind), W. S. Brock; 2, Ford 4-AT (three Whirlwinds), F. M. Hawks; 3, Travel Air (Caminez), J. N. Kelly; 4, Alexander Eaglerock (Menasco), B. Howard; 5, Curtiss Robin (OX-5), D. R. Robertson; 6, Stearman (Whirlwind), D. P. Levy; 7, Buhl Airster (Whirlwind), Alger Braham; 8, Buhl Airsedan (Whirlwind), L. G. Meister; 9, Ryan Brougham (Whirlwind), E. W. Cleveland; 10, Ryan Brougham (Whirlwind), A. Henley; 12, Alexander Eaglerock (Hispano-Suiza), C. P. Clevenger; 14, Travel Air (Siemens), G. B. Peck; 16, Ryan Brougham (Whirlwind), Vance Breese; 17, Swallow (Whirlwind), A. A. Sadowsky; 18, Waco 10 (Whirlwind), J. P. Wood; 19, Waco 10 (Whirlwind), C. W. Meyers; 20, Stinson Detroiter (Whirlwind), Eddie Stinson; 21, Stinson Detroiter Junior (Warner), Randolph Page; 22, Stinson Detroiter Junior (Warner), R. D. Towers; 23, Lockheed Vega (Whirlwind), R. Cantwell; 24, Fairchild FC-2 (Whirlwind), Lockwood Pears; 25, Bellanca C.H. (Whirlwind), G. Haldeman; 26, Monocoupe (Velie), Mrs. P. F. Omlie; 28, Waco 10 (Caminez), M. G. Beard; 29, Monocoupe (Velie), D. H. Atkinson.

Led by Mrs. Omlie in a Monocoupe monoplane, all competitors left Detroit at one minute intervals for Indianapolis. Accompanying the competitors were two Army aeroplanes one, a Curtiss O-1, carrying as passenger Mr. Ray Collins official tour referee, and the other, a Fokker transport, carry ing newspaper reporters and Mr. A. C. Schlosser, the officia scorer of the tour.

The Caminez-engined Waco No. 28 was left behind a Indianapolis with engine trouble and the Ford 4-AT broke crankshaft in its nose engine but managed to reach Indianapolis on two engines without losing any marks.

From the beginning John P. Wood on a Waco 10 took th lead and at the end of every leg he steadily increased hi score. His lead over the next competitor reaching 1,00 points as early as the eighth leg.

At Tulsa, the Swallow biplane flown by A. A. Sadowsky, th sales manager of the Swallow Company, was, as the American say, " sold out from under him " to a Mr. Helm, who afte paying for the machine continued in the tour as passenge with his pilot Mr. Aarang.

At Marfa Mrs. Omlie turned over on landing and badl damaged her machine although neither Mrs. Omlie nor he passenger, Mrs. Stinson, were hurt. Mrs. Omlie proceede as passenger in the three-engined Ford to El Paso wher arrangements were made for her to take over the siste machine flown by D. H. Atkinson, who returned to Marf to wait for the damaged machine to be repaired before re joining the tour.

At San Diego, which was just over one-third of the tota distance to be covered, twenty-two of the original 25 entrie were still in the competition, and at San Francisco, a littl more than half the total distance Wood was still in the firs place with a score of 13,407, 1,789 points more than that c his closest competitor, the three-engined Ford piloted b Frank Hawks.

Of those that had fallen out, the Alexander Eaglerock No. piloted by Benny Howard dropped out in Oklahoma wit engine trouble, the Monocoupe No. 26 flown by Mrs. Omli " ground-looped " at Marfa, as already mentioned, and th Travel Air No. 14 was unable to start from El Paso. How ever M. G. Beard, on the Caminez-engined Waco, who wa left behind at Indianapolis, managed to catch up and rejoi the Tour.

The return journey from San Francisco began on July 1 All the way to Tacoma and Spokane over mountainou country fog and clouds were experienced and various de tours were necessary to avoid certain dangerous areas, but i spite of this, all 22 aircraft remained in the Tour and nearl all pilots made perfect scores. At the completion of th twentieth leg at Tacoma, David Levy on the Stearman b plane No. 6 was the only competitor to have completed ever leg with a perfect score. At Missoula J. P. Wood on th Waco 10 No. 18 had increased his score to 19,359.8 or no over 2,000 ahead of the next competitor.

On July 28 twenty-four aeroplanes of the original twenty five starters landed at Detroit and completed the 6,300-mil Tour. D. H. Atkinson, who had waited behind at El Pas to pick up Mrs. Omlie's damaged Monocoupe and G. B. Pec

AN INTERESTING COMBINATION.—A Waco 10 fitted with the 135 h.p. Fairchild-Caminez four-cylinder air-cooled radial cam-engine.

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"MORNING POST,"
8th May, 1928.

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who was also left behind in El Paso with magneto trouble rejoined the Tour at Great Falls, leaving only the Alexander Eaglerock No. 4, the pilot of which experienced difficulty in obtaining spare parts for his Americanised foreign engine, as the only non-finisher.

J. P. Wood on the Waco 10 (Whirlwind) No. 18 was the winner, with a total of 27,013.4 points and was awarded the Edsel B. Ford Trophy and $2,500, as the first of the ten cash prizes awarded by the Detroit Chamber of Commerce. The other prize winners were: 2nd, Ford monoplane (pilot: Hawks), 24,390.8 pts.; 3rd, Stinson Detroiter Junior (pilot: Page), 22,786.5 pts.; 4th, Waco (pilot: Meyers), 22,127.1 pts.; 5th, Stinson Detroiter (pilot: Stinson), 21,243 pts.; 6th, Stinson Detroiter Junior (pilot: Braun), 19,871.3 pts.; 7th, Ryan (pilot: Henley), 19,728.9 pts.; 8th, Bellanca (pilot: Brock), 19,445.3 pts.; 9th, Ryan (pilot: Breese), 18,389.3 pts.; and 10th, Buhl (pilot: Meister), 17,948.1 pts.

The Tour was a success and throughout the competitors were accorded hospitality such as is unknown outside the United States. Owing to the fact that stops at a number of places lasted over two days ample time was allowed for minor repairs, but for those who had no troubles to shoot plenty of amusement was provided by the various cities. At every city free accommodation and meals were provided either by the municipality or by prominent business interests at the biggest hotels, and free sight-seeing trips, "barbecues," "fish-frys," and other harmless amusements were available for those that like this sort of thing.

A firm of Chicago grocers entered a machine, a Buhl Airster, and this company, apart from acting host to the tour personnel in Chicago and Milwaukee, presented every pilot and passenger on the tour with two-quart thermos bottles in leather cases and at every stop on the 6,300-mile route had service stations for filling the bottles with the company's brand of coffee "or whatever the owner might *reasonably* desire." Apparently a good time was had by all.

THE CANADIAN CIVIL AIR PROGRAMME FOR 1928.

The 1928 programme of the R.C.A.F. in civil operations for Government Departments includes the following work:—

Department of the Interior.

Forest Service.—Provision of twenty hours flying time for emergency fire periods in British Columbia; continuation of air patrol as in 1927 in Alberta; continuation and intensification of aerial patrols over fourteen and a half million acres of forest in Saskatchewan; and continuation of the work in fire prevention and suppression covering forty million acres in Manitoba.

Photographic surveys in the Nelson River watershed in connection with possible pulp and paper development, and in the Saskatchewan patrol area in order that base maps may be prepared for use of air patrols.

Topographical Survey.—Vertical aerial photography in co nection with mapping the Rouyn, Sudbury, and the P mineral areas, and in the Gatineau, Opinaka, and Chicoutin districts in Quebec; vertical photography in the Shelburn and Guysborough districts in Nova Scotia and the Monct district in New Brunswick; oblique aerial photography f mapping the Dryden, Quetico, and Rainy Lake districts i Ontario; in Saskatchewan, oblique photography of the L La Ronde, Lac Mironde, and Reindeer Lake areas; Alberta, vertical photography in the St. Ann area, an oblique photography of an area in the vicinity of Lak Athabaska; oblique photography to complete the mappin of Wood Buffalo Park near Fort Smith, N.W.T., in co-oper tion with the North West Territories and Yukon Branch.

National Parks of Canada.—Oblique aerial photography the Snake, Indian, Snaring, and Rocky River valleys; pi torial views of sites of historic interest when other oper tions permit.

Dominion Water Power and Reclamation Service.—Vertic and oblique photography in connection with power projec in New Brunswick, Ontario, Quebec, Manitoba, and Britis Columbia; vertical photography of the whole course of t Nelson river from lake Winnipeg to Hudson Bay.

Other Departments.

Department of Indian Affairs.—Transportation of Trea paying parties in northern Manitoba.

Department of National Revenue.—Transportation officers of the Preventive Service as necessary.

Department of Marine and Fisheries.—Aerial patrol Hudson straits to determine ice conditions in connectio with the navigation of Hudson Bay. Contracts have bee let for air services in connection with fishery protectio work on the Pacific coast.

Department of Agriculture.—Experimental dusting for t prevention of wheat rust in the Prairie Provinces, and f the control of the spruce bud worm in the Muskoka distri in Ontario.

Department of National Defence (Geographical Section).— Vertical aerial photography for mapping in the Easte Townships in Quebec, and in central Ontario.

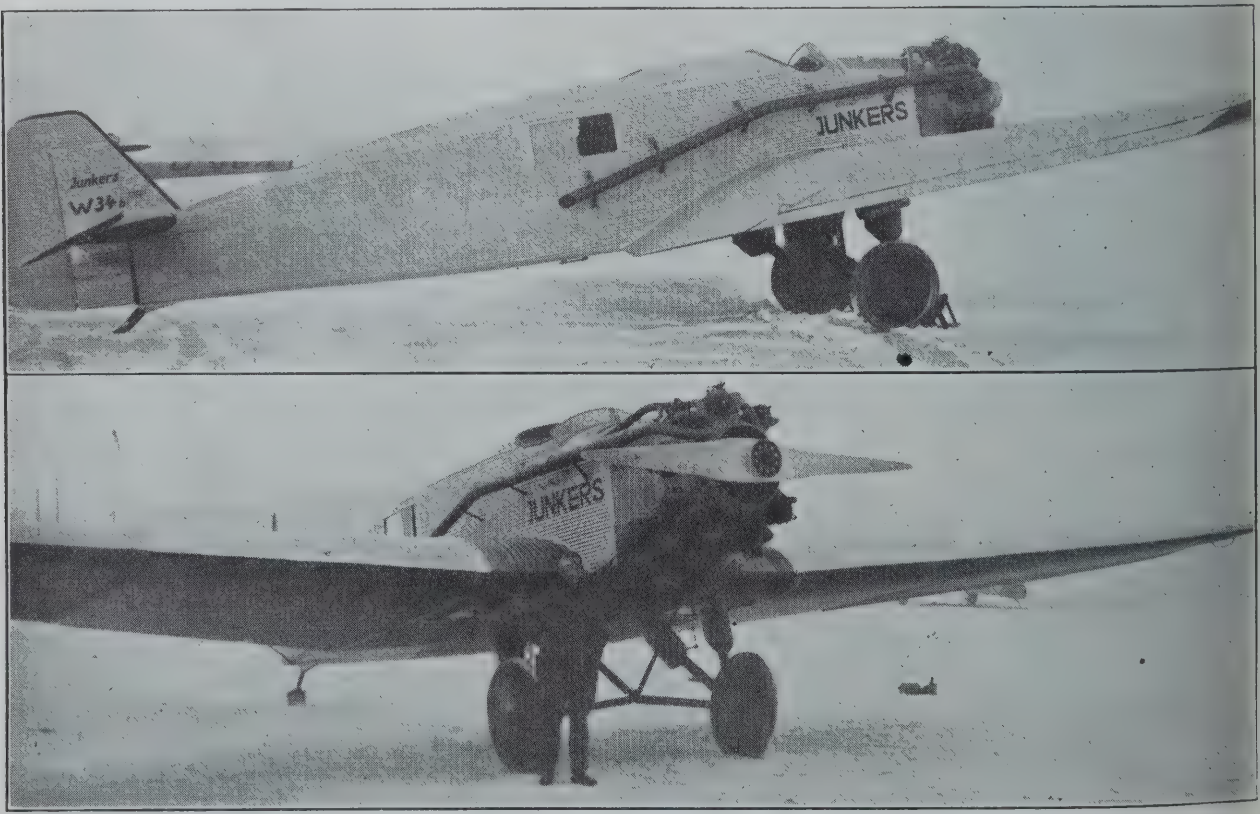
Department of Mines (In co-operation with the Top graphical Survey Department of the Interior).—Vertical aeri photography of mineralised areas in Quebec, Ontario, an Manitoba.

Department of Public Works.—Vertical and oblique phot graphy of harbours and harbour works.

Department of Railways and Canals.—Transportation se vice and photography in connection with the Hudson Ba railway, and Fort Churchill terminal and harbour constru tion.

Provincial Air Work.

In addition to the work of the R.C.A.F., extensive pr



A JUNKERS FOR NEW GUINEA.—A Junkers W-34 monoplane (450 h.p. Bristol Jupiter engine) which has been acquired by Guinea Airways Ltd. for transport work in New Guinea.

ammes are being made by provincial governments and ivate interests. The province of Ontario operates its own ing service, and during the period of fire hazard, fire tection and suppression patrols are carried out throughout rthern Ontario. Forest type mapping is also carried out a large scale, as well as exploration in the district of tricia, and the transportation of survey parties and govern- ent officials.

In Quebec and British Columbia the work is undertaken commercial companies, under contract, for the respective ovincial governments. Extensive programmes of vertical otography for forest mapping are being undertaken in the ke St. John and Gaspé districts and much transportation r survey parties on the north shore of the gulf of St. wrence is done by aircraft. Air patrols for forest fire otection will be continued in British Columbia.

COMMERCIAL SERVICES.

The year 1927 saw a great advance in the establishment of gular air services in the remoter parts of Canada, and in 28 a further great advance is expected. It is now possible travel by air to the principal mining fields in northern skatchewan, Manitoba, Ontario, and Quebec, with ease, mfort and safety.

In addition to these services, a large number of aircraft ll be employed on transportation for mining exploration, ospecting, forest inventory, and other similar work in the moter parts of Canada. Regular winter air mail services ere contracted for by the Post Office Department to the ed Lake area from Hudson, Ontario; to Anticosti and ven Islands from Murray Bay, Quebec; to Charlottetown, d Magdalen Islands from Moncton, New Brunswick; and om Leamington, Ontario, to Pelee Island in Lake Erie, the ost southerly point in Canada.

Contracts have been arranged for the hastening of in- ming and outgoing trans-Atlantic mails during the summer ason of navigation, to and from Rimouski to Montreal, tawa, and Toronto, and consideration is being given to e further extension of such services. Surveys are being dertaken to ascertain the best possible routes of travel air.

Experimental work by the British Government in long- stance travel by airship is proceeding, and the airship ooring tower at St. Hubert Aerodrome, near Montreal, will completed during the coming summer. If the trials of e airship now being built are satisfactory, it is possible at experimental trans-Atlantic flights may be undertaken is fall.

Interest in air transportation is growing rapidly, and to courage the knowledge and use of aviation the Depart- ent of National Defence is assisting in the establishment light aeroplane clubs in the principal cities of the ominion.

Canada offers a magnificent field for the development of r navigation on useful lines which are of benefit to the neral public, and there is no doubt that the next few ars will see great strides made in the adoption of aerial ansportation between the various parts of the Dominion.

ACROSS THE UNITED STATES.

At 16.10 hrs. on Aug. 19, Colonel "Art" Goebel and Mr. arry Tucker left Los Angeles on a Lockheed Vega mono- ane and flew non-stop across the United States to Long land, N.Y., where they landed at 11.08 hrs. on the following y. The total elapsed time for the flight was 18 hrs. 58 ns., which lowers the previous record by over eight hours. eir average speed was 140 m.p.h.

LYNX ENGINES IN THE DUTCH EAST INDIES.

The first of the four Fokker F.VII-3m monoplanes to be ed on the lines to be operated by the Nederlandsch dische Luchtvaart Maatschappy (N.I.L.M.) in the Dutch ast Indies is now being tested prior to being flown out to e East in the autumn.

These machines are each being fitted with three 230 h.p. rmstrong Siddeley Lynx engines and they will have accom- odation for eight passengers and a petrol capacity of 275 llons. They are also being fitted with hand-operated wheel- akes which reduce the running distance of the machines hen landing by at least one half.

As they are intended for service in the tropics the metal rts of the engines have been specially treated and the ooden wings have been given a triple coat of varnish.

THE INDIAN FLYING CLUBS.

The Government of India has given formal approval to e articles of association of the Bengal Flying Club and the itial subsidy is being made in October. This comprises a ant of 20,000 rupees (about £1,500), with an additional 9,000 pees (about £700) for the erection of a hangar, the gift of o light aeroplanes, and a rebate off customs duty on uipment.

The Bengal Flying Club, which was founded in Calcutta st year, is the fourth Light Aeroplane Club in India to be ficially recognised by the Government, the others being at elhi, Bombay, and Karachi.

STRAIGHT FROM THE STABLE.

A $60,000 company has been formed in Wichita, Kan., to build a new type of aeroplane which it is claimed will fly backwards or forwards, cannot fall out of control, will land without the aid of a pilot and will fly 2,000 miles carrying only 200 gallons of petrol. It is without a rudder, is designed to carry sixteen passengers on 180 h.p., is propelled by rotors and is constructed entirely of metal.

The announcement of this revolutionary "airplane" in the American Press is headed "Business Men Form $60,000 Concern to Construct Stable Designed Plane," which seems to indicate that horse-sense is not exactly what one thought it was.

THE D.H. MOTH IN THE U.S.A.

It is reported that the De Havilland Aircraft Co. Ltd. are negotiating for a site in Buffalo, N.Y., to erect a $2,000,000 factory for the manufacture of the D.H. Moth and the D.H. Gipsy engine. Local arrangements for the financing of the venture have been completed, and the Buffalo Chamber of Commerce now awaits the decision of the British company before disposing of the land which has been tentatively chosen. Two other aircraft concerns also desire to obtain this land, but as they only propose to use it as a base for joy-riding preference is being given the De Havilland company, who promise to employ hundreds of hands in its new factory.

AVRO AVIANS IN THE U.S.A.

The first four Avro Avians to be delivered to Air Associates, Inc., of New York City, were all sold within five days. Three went to New York private owners and the remaining one to a Pittsburgh private owner.

A Fox "Movietone" film has been released in America in which an Avro Avian is the central feature. Fitted with Handley Page automatic slots, it is shown taking-off and landing in small spaces and "close-ups" show its wings being folded and unfolded.

THE FLYING CLUBS.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending Aug. 18.

Flying Time 29 hr. 20 min. *Instruction* 15 hr. 55 min. *"A" Pilots* 6 hr. 35 min. *Passengers* 6 hr. 15 min. *Tests* 35 min. *Instruction.—With Mr. J. D. Parkinson*—Mrs. Kish, Miss Yendall, Miss Forster, Messrs. Middleton, Forster, A. H. Sadler, S. E. Sadler, Milburn, Alton, Griffiths, Runciman, Hayton, Temple, Walker, F. M. Hall, Dr. Alderson, Dr. Walker. *"A" Pilots.*—Mrs. Heslop, Messrs. H. Ellis, Horn, Irving, C. Thompson, R. N. Thompson, Turnbull, Wilson, Dr. Alderson.

During the week we were visited by Mr. Muir, of the Surrey Flying Services, on a D.H.9. Mr. Holman on a new slotted Moth called, and his demonstration on taking-off was greatly appreciated by the members.

A large crowd turned up last Thursday to welcome Mr. Rawson on the Autogiro, but as he was some hours late most of the spectators had departed before he arrived. It transpired that the undercarriage of the machine suffered damage at Howden, and unfortunately Mr. Rawson was unable to give a demonstration. However, he proceeded to Renfrew where the necessary repairs were to be effected, and we hope to see him again on his return South.

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Aug. 18.

Flying Time 26 hr. 50 min. *Instruction* 9 hr. 40 min. *Soloists* 14 hr. 50 min. *Passengers* 2 hr. 55 min. *Instruction.—With Mr. Beck*—Miss Ellison, Messrs. Parks, Evans, A. Senior, G. Senior, Brodie, Lloyd, Brown, G. Thompson, Swift, Bamford, Jackson, Gill, Dujardin, Watson, Palmer, Ellison. *"A" Licence Pilots.*—Messrs. Thomson, Ellison, Lax, Clayton, Wood, Ambler, Birch, A. Crowther, H. Crowther, Humpheries, Norway, D. Atcherley. *Passengers.*—18.

On Wednesday Mr. A. C. H. A. Rawson arrived in the Autogiro and made a nearly vertical approach from 1,200 feet. Two demonstration flights were given to Messrs. Clayton and Birch, and Mr. Rawson departed for Howden on Thursday. One of our members, when interviewed by an eager Pressman for his views on the machine, simply remarked, "I refuse to believe it."

On Saturday the Wayman Bowl was presented by Mrs. Wayman to Mr. Ivo Thomson for having put in 103 hours' solo flying between July, 1927, and July, 1928. The bowl was not filled as it would only hold about a gallon, a negligible quantity where our flying members are concerned.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Report for fortnight ending Aug. 18.

Flying Time 62 hr. 47 min. *Instruction.—With Flt. Lt. T. Rose, D.F.C., and Mr. W. H. Sutcliffe*—20 members. *Soloists (under instruction).*—21 members. *Passenger Flight.*—10 members.

Messrs. J. B. Briggs, J. R. Guthie, L. H. Lee and T. H. Drury successfully made first solo flights.

Flt. Lt. T. Rose flew XT to Stag Lane Aerodrome and had the new split undercarriage fitted. This is a very great improvement.

Through the courtesy of A.D.C. Aircraft Ltd. the service of Mr. V. J. Neyle have been obtained during the absence of our Engineer, Mr. Halland, who is on holiday.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, Hamble Aerodrome, Southampton.]

Report for week ending Aug. 17.

Flying Time 27 hr. 40 min. *Instruction* 15 hr. 10 min. *"A" Pilots* 5 hr. 30 min. *Soloists* 1 hr. 65 min. *Passenger Flights* 4 hr. 40 min.

Tests 1 hr 15 min. *Instruction.—With Mr. W. H. Dudley*—Cdr. Hunt, Messrs. Reuther, Grahame Gibbs, Curtis Nuthall, Brewster, Martin, Buckley, Ashford, Turner, Mrs. Gibbs. Dr. Bowden, Miss Home, Messrs. Berney, Endacott, Cambell, Des Graz, Snowden, Falconer, Cdr. Bell, Messrs. Redwood, Mattocks, Sturge, Cdr. Creswell, Mr. Southcliffe, Cdr. Tower, Lt. Collier. *"A" Pilots.*—Capt, Kirby, Mr. Sanders Clark, Lt. Heinemann, Miss Grace, Mr. Falconar, Plt. Off. Leech, Mr. Rayson, Mr Hoare. *Soloists.*—Mr. Sturge, Cdr. Tower. *Passengers.*—10.

The Club renewed its customary activities on Aug. 14 after being closed for 10 days for the summer holidays.

On Thursday a number of members attended the opening meeting of the new Isle of Purbeck Light Aeroplane Club at Worth Matravers. Capt. Kirby flew over in one of the Club Moths. Mr. Simmonds attended with his Spartan, which, as usual, aroused a great deal of interest and the pilot, Flt. Lt. Banting, was kept busy giving joy flights. Flg. Off. Seeman kept the crowd interested with some remarkable stunting on a Genet Moth.

We wish Colonel Strange and the new Club every success.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending Aug. 19.

Flying Time 36 *hours.*

Instruction.—With Mr. Young—Mrs. Cator, Messrs. H. Wharton, C. Ransome, R. Wright, H. M. Smith, A. Kirkby, C. Harvey, H. Neave, C. Rope, F. Rinder, W. Harvey, H. Meadows, C. Land. *Soloists.*—Mrs. Cator, Messrs. E. Varden Smith, F. Gough, C. Gowing, R. Potter, A. G. Marshall, C. White, R. Harmer, A. Richardson, A. G. Lofty, H. Cator, N. Brett, E. Lambert. *Passengers.*—32.

We have a lady pilot at last. These are not to be met with every day in this district; fond fathers and husbands ban flying so it seems for their womenfolk. However, our Vice-Chairman, Capt. Cator, has just completed his "A" tests himself this week and he has not banned his wife flying. Mrs. Cator "went solo" for the first time on Saturday and a real good show she put up, finishing up with a topping landing. We hope this will be one of many lady pilots to pass out in the Club.

What a landing! A. G. Lofty, in fine fettle, just completed a height test according to regulations, engine shut off at the proper height of course and totally disregarding the golden rule, "If in doubt use your engine," gritted his teeth and nearly cut the whole plane off. It was one of those landings with three episodes, to be continued, etc. Having dodged two hangars and some wires he is extremely lucky to be down O.K. at all. It was certainly the most hair raising exhibition of crazy landings we have seen on the aerodrome.

We are glad to have Mr. Birchall back with us once more after his exciting experience in our Moth last April, and to see him looking so fit considering all things.

An "A" Licence expert of some considerable experience saw fit to demolish the Avian this afternoon. Rotten landing, of course. Most of these things happen so. Fortunately he wasn't much hurt and we salved a few bits of the machine, round which we hope the experts will be able to build a new framework. Aero Club life seems to be just one Damn thing after another.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadleigh, Suffolk.]

Report for week ending Aug. 18.

Flying Time 20 hr. 5 min. *Instruction* 14 hr. 25 min. *"A" and "B" Pilots* 1 hr. 25 min. *Passenger Flights* 4 hr. *Tests* 15 min. *Instruction.—With Mr. Lowdell*—Miss Rhodes, Dr. Mildred Yate, Messrs. Goodwin, Hanson, Wedd, T. and B. F. Marriage, Ogilvie, Pettiward, Croydon, Billinton, Brown, Jolly. *"A" and "B" Pilots.*—Dr. J. C. Sleigh, Mr. C. N. Prentice. *Passengers.*—14.

There have been no reports from Hadleigh during the last few weeks as the Club was closed down while Mr. Lowdell went to Stag Lane for reserve training and the machines went to Brough for repairs. We are, however, in full swing once again and a number of new pilot members have started their course of instruction.

On Friday the Club is holding a Display at Clacton in conjunction with the Friendship Fellowship.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. F. G. Crawford, Filton Aerodrome, Bristol.]

Report for week ending Aug. 18.

Flying Time 33 hr. 15 min.

In view of the absence of TV at Stag Lane and our Ground Engineer on holiday for the greater part of the week, our flying time is very satsisfactory.

It has only been possible to keep the Club open through the ready assistance of all members and of the A.I.D. in general, and Mr. Savage, of the A.I.D., in particular, who has voluntarily given his spare time to inspecting and signing out our machines.

On Friday evening Messrs. T. H. Clarke and Lynas both passed their tests for R.Ae. Club Certificates, with perfect figures of eight and precise landings.

The Nottingham Aero Club.

[Hon. Sec.: Cecil R. Sands, Hucknall Aerodrome, Nottingham.]

Report for week ending Aug. 17.

Flying Time 32 hr. 45 min. *Instruction* 9 hr 40 min. *"A" Pilots* 5 hr. 50 min. *Soloists (under instruction)* 12 hr. 50 min *Passengers* 3 hr. 5 min. *Tests* 1 hr. 20 min. *Instruction.—With Mr. Martin*—Messrs. Thorpe, Thirlby, Chawla, Stevenson, Calladine, Hutchinson, Hancock, Winn, and Lazzerini. *Solo "A" Licence.*—Messrs. C Paul, R. Granger, Blake, Sands, Pilgrim, Bradley, and Selv *Soloists (under instruction).*—Messrs. Taylor, Glenn, Hatton, Chaw Calladine, and Winn. *Passengers.*—Messrs. Archer, Dennis, Ru worth, Batty Brothers, Kay, Iles, T. Hancock, T. R. Hancock, F. Hancock, Pringle, Linsley, and Cudlip.

During the early part of the week the weather was very rough, we have been able to allow Messrs. Calladine and Winn to jug with death for their first solo. Both made excellent landings a are to be congratulated, also Messrs. Bradley and Selvey for getti their "A" tickets and Mr. Taylor for obtaining his R.Ae.C. tick

The Isle of Purbeck Light Aeroplane Club.

Report for week ending Aug. 18.

If the clerk of the weather favours us generally as he did on opening day last Thursday we shall have no cause for complai Flying started at 10.30 hours when Mr. Banting took up a member the Simmonds Spartan, which was seldom on the ground for the r of the day. About 14.30 hours our two visitors arrived—Flg. Seeman on a R.A.F. Genet-Moth, and Capt. Kirby with Mr. Bern on a Cirrus-Moth of the Hampshire Club. By this time there w about a thousand people in and around the aerodrome and at th o'clock they were treated to a fine display of aerobatics by Seeman. Flying went on continuously until 18 hours and the d was voted a great success. All who flew were greatly impressed the marvellous views over the Isle of Purbeck, whilst the value aircraft in agriculture was remarked upon by not a few.

The Spartan with its exceedingly valuable interchangeable featu was naturally the centre of interest, and those who could apprecia fine points all agreed that the chassis of this machine is somethi really exceptional. It seems almost impossible to leave the grou once the wheels touch, and she pulls up in an extraordinary sh distance. Our instructor says she is the most delightful machine has ever flown and is very easy to land.

As to membership, our strength now stands at 47 pilot members, observers and 37 associates. One member has already come forwa with a definite order for a Simmonds Spartan which he has agre to loan to the Club in return for part care, maintenance and instructi

On Aug. 23 we are fetching General Brancker in the Spartan speak at the inaugural meeting of the Dorsetshire Aero Club, at whi it is hoped to form a headquarters and three other branches similar our own. The meeting takes place at noon at the Town Hall, D chester, and all who are interested are invited to be present.

We are pleased to welcome Flg. Off. H. W. R. Banting, R.A.F. who has been appointed Chief Instructor, and Mr. Vaisey, recent of the London Club, who takes over the engineering side. In th the Club is assured of a keen and capable staff.

The Winnipeg Flying Club.

Report for week ending June 24.

Flying time was 16 hr., the weather being unfit for long periods, a repairs to the machine taking another day. A longeron was brok near the tail-skid as a result of hitting rock in the long grass wh taxi-ing.

No solo flying was done and no passengers were taken up, du instruction being given to the following members: Mrs. Oakes, Mi Magill, Messrs. Alleyn, Antonbring, Bradbrooke, Brookes, Furniv George, Haldane, Langley, McDougall.

Total hours, all flown on G-CAKB, were 108 up to June 24, and tot flights approximately 1,200.

The Bombay Flying Club.

The Bombay Flying Club is beginning to take definite shape in t hands of its capable Honorary Secretary, Mr. Alan R. Fenn. T Moths have been ordered for instruction work and the Club hopes "take the air" about November. Sir Victor Sassoon is interesti himself in the Club. Not only has he helped it considerably financial but he has ordered two Moths, one for his own use and one for s to anybody who wants immediate delivery.

FLYING SCHOOL.

The Henderson Flying School.

[Managing Director: Lt.-Col. G. L. P. Henderson, Brooklands Ae drome, Byfleet.]

Report for week ending Aug. 16.

Flying Time 32 hr. 35 min. *Dual.—With Col. Henderson*—Mess Stewart, Moursi, Elton, Matos. *With Mr. Davis*—Messrs. Du Ca Daniels, Dr. Taylor, Mr. Courtney-Banks, Dr. Shields, Messrs. Aust Groner, Moursi, Robertson, Lewis, Bennett, Matos, Leigh, Hamilt Dr. Forsyth, Mrs. Scott, Mrs. Monkton, Miss Kidston. *With M Davenport*—Messrs. Soames, Guiness, Du Cane, Dr. Shields, Forsyth. *Soloists.*—Messrs. Robertson, Daniels, Du Cane, Oliv Stewart, Knox, Groner, Miss Kidston.

The flying time has been cut down considerably owing to th dud days, but much good work has been put in.

Mr. Robertson took his ticket in great style. He is certainly o of the best pupils the school has turned out this year.

Miss Kidston, Messrs. Stewart and Matos were sent on their fi solos.

Early morning flying is still very popular and there is a gene fight to be the first in the air.

Col. Henderson and Mr. Anderson flew to Ireland in G-EBWJ a left Brooklands in typical "Henderson" weather—rain and a g of wind.

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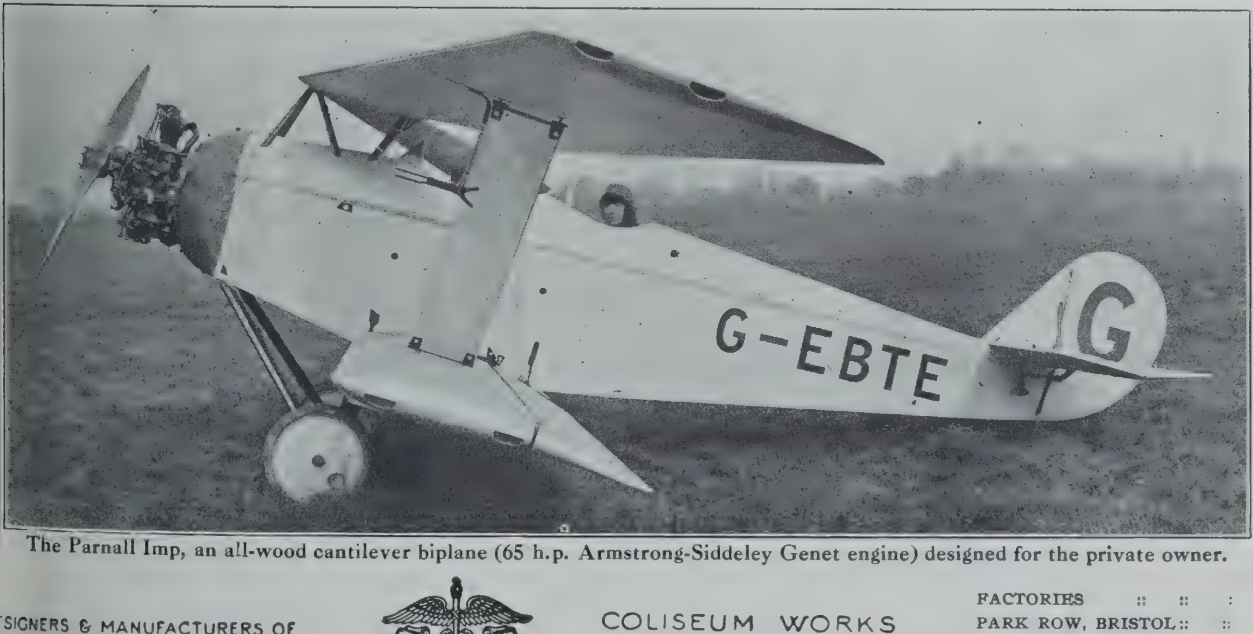

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 13; Monday, 41; Tuesday, 40; Wednesday, 44; Thursday, 39; Friday, 42; Saturday, 45.

IMPERIAL AIRWAYS LTD. :

London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 97, passengers 1,010, freight 26 tons.

AIR UNION :

Paris—London and return: Machines 68, passengers 463, freight 12 tons.

K.L.M. :

Amsterdam—Rotterdam—London and return: Machines 38, passengers 302, freight 5 tons.

SABENA :

Brussels—London and return: Machines 23, passengers 162, freight 1½ tons.

DEUTSCHE LUFTHANSA A.G. :

Amsterdam—London and return: Machines 24, passengers 65, freight 4 tons.

MISCELLANEOUS :

Machines 14, passengers 22.

Total number of trips by British Machines, 109, carrying 1,028 passengers. Foreign Machines, 155, carrying 996 passengers.

COMPARATIVE FIGURES.

Week ending Aug. 18:

Machines, 264; Passengers, 2,024; Crews, 506; Total personnel, 2,530.

Corresponding week, 1927:

Machines, 188; Passengers, 1,231; Crews, 376; Total personnel, 1,607.

Corresponding week, 1926:

Machines, 186; Passengers, 1,272; Crews, 226; Total personnel, 1,498.

Corresponding week, 1925:

Machines, 196; Passengers, 1,125; Crews, 281; Total personnel, 1,406.

Corresponding week, 1924:

Machines, 176; Passengers, 904; Crews, 223; Total personnel, 1,127.

Corresponding week, 1923:

Machines, 144; Passengers, 724; Crews, 231; Total personnel, 955.

Corresponding week, 1922:

Machines, 176; Passengers, 642; Crews, 303; Total personnel, 945.

Corresponding week, 1921:

Machines, 114; Passengers, 437; Crews, 140; Total personnel, 577.

Corresponding week, 1920:

Machines, 123; Passengers, 262; Crews, 154; Total personnel, 416.

Note.—In addition to the Croydon traffic shown above, K.L.M. have during the past week run 12 machines, carrying 6 tons of newspapers between Lympne and Ostend.

Croydon Notes.

Traffic upon all lines continues to be exceptionally brisk, and 1928 seems to be a vintage year for aviation. "Good measure, pressed down and overflowing," as the passenger remarked when his baggage overflowed into another aeroplane scheduled for a similar destination at a later hour.

Imperial Airways have had a busy week for special chart and several distinguished passengers have flown on t various Air Lines. Dr. Luther, the German Chancell came through from Brussels by Sabena, and on the K.L. lines Prince Gustave Adolf of Sweden and Sir Sam Hoare have travelled.

Private owners make much use of the air, one of the frequently arriving from the Continent after breakfa putting in a day's work in London and returning to t Continent in the evening.

Brighton, Eastbourne and Folkestone will soon go out date as places of residence now that a business man c live in France and work in England through the summ months.

On Saturday the Air Union gave a most successful dinn dance at the Aerodrome Hotel to more than 100 gues Short flights were made before the cocktails, and everybo seemed to enjoy themselves thoroughly. Facilities such the Aerodrome Hotel now offers can do a tremendous amou towards popularising Aviation, especially when these faci ties are taken advantage of by so charming a host as M Grosfils, London manager of Air Union.

The Air Ministry has recently drawn the attention operating firms to Notice to Airmen No. 95 of the year 19 We are delighted to have such a romantic notice rescu from oblivion. Part of it reads as follows: "An aircra wishing to land at night (Argosies have wills of their o it seems) without being compelled to do so, on the Ae drome having a ground control, shall before landing, ma intermittent signals either with a lamp or projector, oth than the navigation lights *or with any sound apparatus.*"

It is to be expected that most pilots will turn down t lamp or projector as a means of signalling in favour of t musical instrument of their choice, and will teedle arou our Aerodromes at night seeking to signal soothingly to t notoriously savage-breasted ground staff with lute, jew harp or oboe. This they will do intermittently until t control tower responds with fife, fiddle or big bassoo Should they obtain no musical encouragement, they w mournfully fly away to some more cultured Aerodrome couple of hundred miles away, possibly murmuring to the selves some such words as these:—

With dulcimer we signalled them,
And loudly twanged the zither,
But all the witless ground staff did
Was leap about and dither.

Large cracks which have appeared in most of the offic

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Another member to the Caterpillar Club, the R.A.F. Pilot who saved his life during the Air Manœuvres at Richmond Park using an Irvin Air Chute.

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l passages of the Aerodrome main building are to be wed to widen for the next six months, and are then to officially closed by the Works and Buildings Department the Air Ministry.

. suggestion that one edge of each crack should be treated h adhesive paste and have a six-inch nail driven into it, ilst the other edge has a powerful magnet clamped to it, s met with uncalled-for contempt. Meanwhile one lives the open-air as much as possible, especially when an gine is being run up on the tarmac.

PILOTS WANTED FOR AUSTRALIA.

'he Commonwealth Government has accepted the tender West Australian Airways Ltd. for the Perth—Adelaide air il service, which will be operated with D.H. Hercules lanes (three 450 h.p. Bristol Jupiter engines). Major rman Brearley, D.S.O., M.C., Managing Director of that n, is due to arrive in England some time in October and ile over here wants to get in touch with some really sound ots and ground engineers. Intending applicants should te to Major Brearley, c/o Tozer, Kemsley and Milbourn, Fenchurch Street, London, E.C.3, marking their plications "To await arrival."

THE BRISTOL JUPITER IN THE U.S.A.

'he E. W. Bliss Company, of Brooklyn, N.Y., has been pointed exclusive licensees for the manufacture and sale the Bristol Jupiter engine in the United States.

'he Bliss Company employed over 16,000 men during the r on engineering work and has branches in several cities the United States.

Several specimens of British-built Jupiter engines are being ported, after which the first of the Bliss-built Jupiter gines will be placed on the market. A large monthly out- is expected when the new engine is put into production.

THE BRISTOL COMPANY IN LONDON.

'he Bristol Aeroplane Co. Ltd., of Filton, Bristol, has ened a London office at Bush House, Aldwych, W.C.2, ich will be under the care of Major C. J. W. Darwin, S.O. (late R.A.F.).

MORTGAGES AND CHARGES.

ANCASHIRE SCHOOL OF AVIATION LTD.—Particulars filed of deben-'s for any sum not exceeding at any time £150 authorised July 1928, charged on the company's property, present and future, in-ling uncalled capital, the whole amount being now issued.

PERSONAL NOTICES.

DEATHS.

OLE.—On Aug. 17, at Digby, Lincolnshire, as the result of a col-n in the air, Adrian Gordon Cole, Lt., 7th Middlesex Regt., T.A., Plt. Off., R.A.F.

r. Cole was appointed to a S.S. comn. in the R.A.F. in June, 1928.

'OLIER.—On Aug. 17, at Digby, Lincolnshire, as the result of a ision in the air, Bertrand Guy D'Olier, Plt. Off., R.A.F.

Ir. D'Olier was appointed to a S.S. comn. in the R.A.F. in ember 1927.

DWARDES.—On Aug. 14, killed in an aeroplane accident during ve operations at Sheikh Othman, Aden, Edward Norman Tickner vardes, Flt. Lt., R.A.F.

lt. Lt. Edwardes was born in 1895 at Bexley, Kent. He enlisted the Sussex Yeomanry in September, 1914, and was discharged to a mission in the R.F.A. in May, 1915. He went to France in ember, 1915 and was wounded at Ypres. He was seconded to R.A.F. in January, 1918, and appointed Staff Officer, Class IV, with rank of Captain in May, 1918. In November, 1920, he was posted he R.A.F. Record Office at Ruislip. In April, 1926, he was appointed permanent commission in the R.A.F. and resigned his Army com-sion. He was promoted to be Flight Lieutenant in July, 1926. In January, 1928, he was posted from the Record Office to No. 8 (Bombing) Sqdn. at Aden.

FEATHER.—On Aug. 17, at Cranwell, as the result of a collision in the air at Digby, Alfred Rodney Feather, Flg. Off., R.A.F.

Mr. Feather entered the R.A.F. in March, 1925, and after a course of flying instruction at No. 5 F.T.S., Sealand, was posted to No. 55 (Bombing) Sqdn., 'Iraq. In 1927 he underwent a course at the C.F.S., Wittering, and was posted to No. 2 F.T.S., Digby, in January, 1928.

MARRIAGE.

MACNEECE FOSTER—BRUCE.—On Aug. 14, at St. Peter's Church, South Weald, by the Right Rev. the Bishop of Barking and the Rev. F. Proctor, Vicar of South Weald, William Foster, son of Col. and Mrs. MacNeece, of Castle Cary, Co. Donegal, to Jean, daughter of Mr. and Mrs. Ralph Bruce, Langtons, South Weal, Essex.

FORTHCOMING MARRIAGE.

THOMPSON—HELMS.—The engagement is announced between Sq. Ldr. Thomas Frederick Wailes Thompson, D.F.C., R.A.F., son of the late Christopher Thompson and of Mrs. Thompson, The Priory, Lyncombe Hill, Bath, and Lorna Mary, daughter of the late Capt. and Mrs. P. T. Helms, of Sydney, Australia.

BIRTHS.

EDMONDS.—On Aug. 18, at Dudley House, Beaumont Street, W.1, to Lorna, wife of Wing Cdr. C. H. K. Edmonds, R.A.F.—a daughter.

WALTERS.—On Aug. 10, at "Charlcote," Taylor Road, Wallington, to Alma (*née* Richards), wife of Flg. Off. A. Walters (late R.A.F.)—a daughter.

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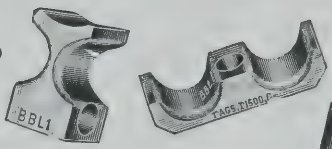

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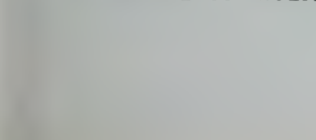

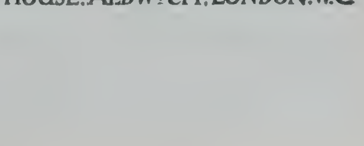

MISCELLANEOUS ADVERTISEMENTS.

All Advertisements for this column should arrive at this office by 6 p.m. MONDAY, to ensure insertion.

For the convenience of Advertisers, replies can be received at the office of THE AEROPLANE, Cannon House, Pilgrim Street, London, E.C.4.

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Air Survey Company Ltd., 3, Copthall Buildings, E.C.2. L.W. 9850. 39, Grosvenor Place, S.W.1. (Sloane 6048), and Monkey Point, Rangoon, and 12, Hungerford Street, Calcutta.

The Aircraft Operating Co. Ltd., 8, New Square, Lincoln's Inn, London (Holborn 8131), and Bulawayo, Southern Rhodesia; Cairo, Egypt; Rio de Janeiro, South America: Contractors to the Ordnance Survey. Laboratories and Subsidiary Company for aerial photography in the British Isles, Aerofilms Ltd., Colindale Avenue, Hendon (Colindale 6157).

PATENTS.

Patents and Designs Acts, 1907 to 1928.—Notice is hereby given that Edison Hallowell, of "Ryburn," Broadgate Lane, Horsforth, near Leeds, seeks leave to amend the Specification of the Application for Letters Patent No. 291263, in respect of an invention entitled "A Device for Propelling Aircraft at High Altitudes by Direct Fluid Reaction." Particulars of the proposed amendment were set forth in the Illustrated Official Journal (Patents), of Aug. 9, 1928. Any person, or persons, may give Notice of Opposition to the amendment by leaving Patents Form No. 19 at the Patent Office, 25, Southampton Buildings, London, W.C.2, within one Calendar month from the date of the said Journal. W. S. Jarratt, Comptroller-General.

STANLEY, POPPLEWELL AND FRANCIS, International Patent Agents, Jessel Chambers, 88, Chancery Lane, W.C.2. Telephone, Holborn, 6393; Telegrams, "Notions, London."

The Proprietor of British Patent No. 234525 is prepared to sell the patent or to licence British Manufacturers to work thereunder. It relates to improvements in Aeroplane Wings. Address: Boult, Wade and Tennant, 112, Hatton Garden, London, E.C.1.

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Henderson Flying School Limited, Brooklands. (Nearest station, West Weybridge.) 'Phone Byfleet 437. Residential accommodation on Aerodrome. Avro machines; three Instructors. Special personal supervision given to all pupils. Moderate terms for A and B Licences.

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Avro Avis for sale, fitted with Bristol Cherub 1 engine. T machine is a two-seater biplane and carries a C. of A. up Nov. 20, 1928. Price £100.—Apply Box No. 5547, THE AE PLANE, Cannon House, Pilgrim Street, E.C.4.

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Wainwright's Flying Clothing.—Genuine R.A.F. n "Sidcot" flying suits, fitted fur collars, all sizes, 57s. Full chrome R.A.F. pattern Tan Leather Flying Co £6 6s. R.A.F. Pilots' Gauntlet Gloves, 10s. 6d. per p Flying helmets, fur trimmed, 12s. 6d. Leather breeches, 3 and 55s. Write for catalogue.—Wainwrights, 300 and 3 Euston Road, London, N.W.1. 'Phone: Museum 6280.

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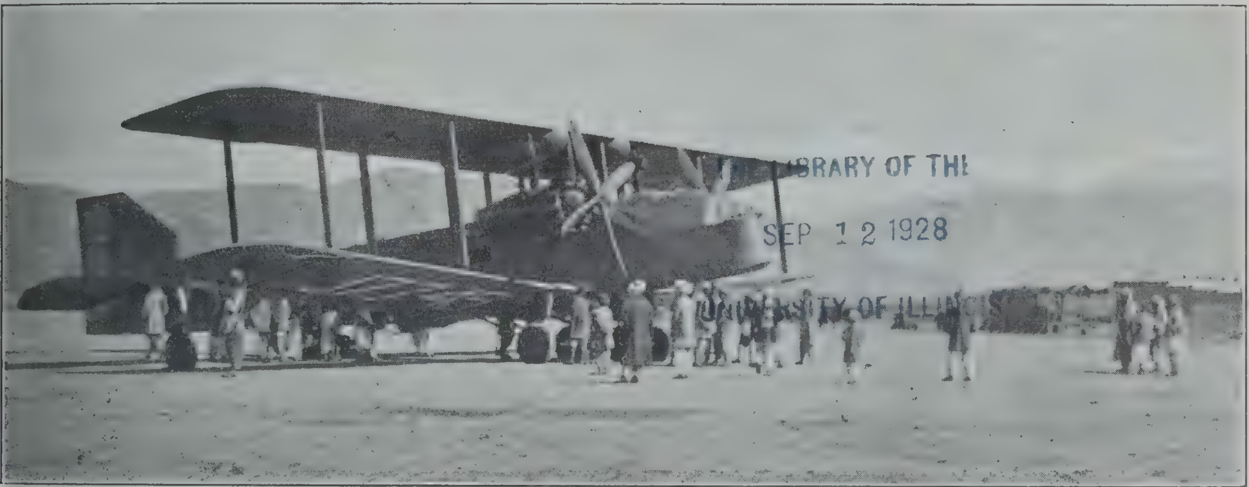
Edited by C. G. Grey

Vol. XXXV. No. 9. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"COME NOT BETWEEN THE DRAGON AND HIS WRATH."

(SHAKSPEARE—*King Lear.*)



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EAST OF SUEZ:—A Handley Page Hinaidi (two Bristol Jupiter Radial aircooled engines) at Arawali, a landing ground on the North-West frontier of India, 3,700 feet above the sea level. This machine has recently completed extensive trials in India with complete success.

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Capt. H. S. Broad in a De Havilland "Gipsy" Moth broke the World's Light Aeroplane Duration Record by remaining in the air for 24 hours.

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AUG. 29, 1928.

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Incorporating
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ON AVIATION IN THE LOWLANDS.

In the course of a short holiday on the Belgian Littoral (of ich strip of sand more may be said later) one re-entered ilisation for a few days so as to have a look at the tivities in Civil Aviation of Holland and Belgium (erstile collectively known in History as The Lowlands). What e saw would have gladdened the heart of those who miside the Air League of Great Britain. For, thanks to the t that Amsterdam and Rotterdam and Brussels happen be either way-stations or junctions on about a dozen differt air-lines, besides being the termini of air-lines of their n, there is rather more activity at each of those aeroomes than there is at Croydon. And the fact that the pulation of Holland or of Belgium is perhaps about 1% of at of the whole British Empire (taking in India's hundreds millions of Dravidians and other "breeds without the w," for the purposes of argument) might obviously be used argue that, if Dutch or Belgian air traffic is equal to that Croydon, Aviation in the British Empire must be beneath ntempt.

As one's visit was necessarily hurried one was much more erested in aerodrome operations and in aircraft producn than in such things as traffic figures and so forth. And yhow, figures can be made to prove anything, just as the vil can always quote Scripture for his own advantage.

BUSY SCHIPHOL.

Naturally the first place of interest was the aerodrome at hiphol, which is the centre of the K.L.M. activities. Some ee years ago one was there on the way to Berlin and k. Since then remarkable improvements have been made, d the way the whole place is run under Mr. Dellaert is model for anybody who has the organising of an aeroome.

Actually the Schiphol Aerodrome is the property of the nicipality of Amsterdam. Everything about it is laid out d organised and run with that precision which is the outnding characteristic of the people of the Netherlands. turally things are on a smaller scale than at the great mpelhof Aerodrome at Berlin, which is accepted as the hest point of aerodrome lay-out and management, but size size there can be nothing to choose between the two.

One was taken round the Aerodrome by Mr. Dellaert and . Thomson, who is the Aerodrome Manager of the *ninklijke Luchtvaart Maatschappij* (K.L.M.), to whom one ders hereby thanks for their courtesy and hospitality.

Between them they have an immense amount of air traffic handle. Besides the K.L.M. traffic itself, which means chines running not only to England but to Paris, Switzerd, Germany and Scandinavia, there are all the various eign lines. There are the *Deutsche Luft Hansa* machines m Berlin to London and also between Berlin and Amsterdam. There are the Swedish *Akti Bolaget Aerotransport* (A.B.A.) machines which come by way of Denmark and Hamburg, there are the Swiss *Balair* from Basel by way of Cologne, and there is the French line, the *Société Générale de Transports Aériens* (Farman).

The new aerodrome buildings are beautifully laid out and include a delightful restaurant which is reserved for air passengers and their friends. The old restaurant which stands, looking rather like a Swiss chalet, on the canal bank high above the aerodrome is still largely used by the aerodrome staff, but even more largely by the thousands of visitors who come out on Saturday afternoons and Sundays from Amsterdam to watch the flying and to go joy-riding.

What the people of Holland do not know about feeding is not worth knowing, so both these restaurants, ten miles or so out from Amsterdam, do one just about as well as a really good London hotel, and would put to shame any English provincial hotel or restaurant.

The chief delight of Mr. Dellaert's heart is his new control-tower which, as the house agents say, is fitted with every modern convenience. What particularly struck one about it is the system of night-landing lights. Instead of having a flood-light which runs around to the windward side of the aerodrome on a motor truck as we do at Croydon he has about a dozen fixed flood-lights placed round the aerodrome and each pointing to the centre of it. Consequently, whatever may be the direction of the wind, two, or if advisable three, of these lights can be turned on with their beams pointing up-wind so that all the pilot has to do is to land over the backs of the lights straight in the direction of the beams.

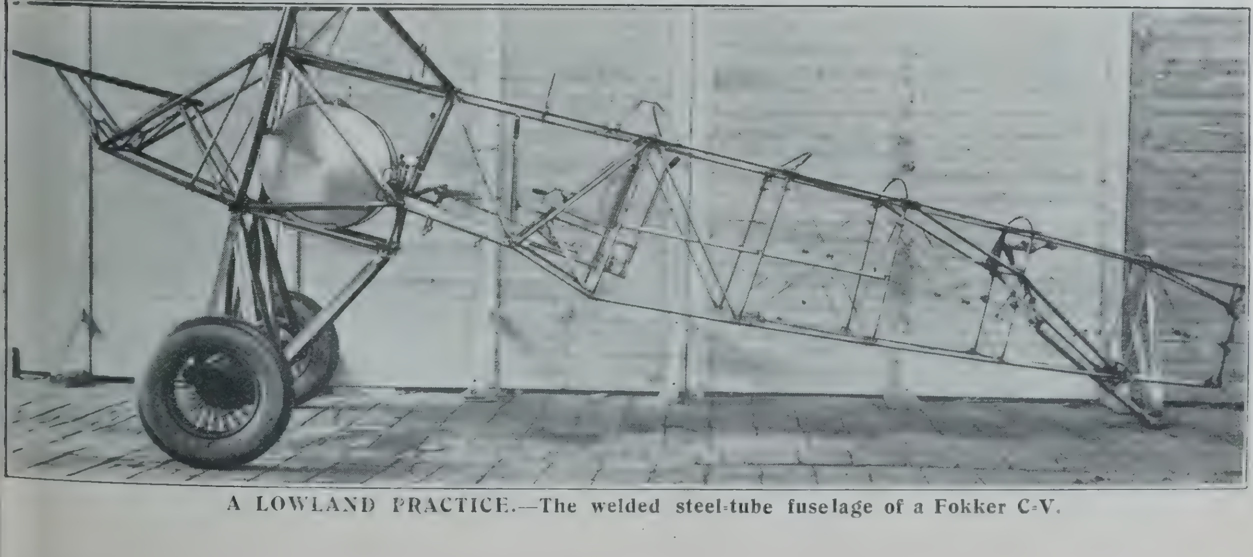
Naturally they are all operated from the control tower. In addition there is a swinging light on a kind of weathercock arrangement to give the pilot his general wind direction before the flood-lights are turned on.

Mr. Dellaert told one that the aerodrome will soon have a Neon beacon of a new kind which has been produced by our British Philips Lamps Ltd. The makers claim that it has marked advantages over the ordinary type of Neon light. And having had considerable experience of Philips car lamps of various kinds, especially their daylight bulbs for fog driving, one is quite prepared to hear that their improved Neon light is a success.

Mr. Dellaert hopes some day to have regular concrete runways for the machines in all directions, in addition to the big concrete alighting-place for passengers. He says that, with increasing traffic, no grass surface can long stand the wear and tear of bigger and heavier and more numerous machines. And here he is obviously right.

SKY WRITING.

While one was at Schiphol Mr. M. L. Bramson, perhaps



A LOWLAND PRACTICE.—The welded steel-tube fuselage of a Fokker C-V.

best known in this country as the inventor of the Bramson Anti-Stall Gear which had the misfortune to be spoiled as a commercial success by the sudden development of the Handley Page Automatic Slot, went up in his S.E.5a to do some sky-writing in fulfilment of a contract which Major Jack Savage's firm has booked in Holland. As one returned to Amsterdam in a very luxurious K.L.M. omnibus the whole population of the city seemed to be standing in the street rubber-necking at the words "Bier Heineke."

One has never been quite so impressed by the real advertising value of sky-writing. If anybody in Amsterdam does not know of Mr. Heineke's product it must be because he or she is either illiterate or blind, and probably deaf as well, considering how everybody was talking about it.

Incidentally one may remark that though there was something very like a gale blowing in a perfectly clear sky Mr. Bramson managed to get his lettering quite clearly legible. Although the word Bier had been blown to pieces before the maker's name was finished that did not detract from the advertising value. In fact it may have actually increased it because, having impressed the great idea of beer on the minds of on-lookers, the probability is that the name of the maker would be emphasised by expectation when it came to stand out alone.

THE FOKKER WORKS.

Before going out to Schiphol in the afternoon one had had the privilege of paying a visit to the Fokker Works in company with Mr. Bramson. Unfortunately our old friend Mr. Stephan, and the Works Manager Mr. Platz, happened to be away on business, but we were taken round most kindly by Herr Bethge, a German engineer in the employ of the Fokker company.

The Fokker Works at Amsterdam occupy the exhibition buildings which were erected in 1920 for the first aircraft exhibition held in Europe after the War, and known as the E.L.T.A. This is rather as if Mr. Fairey or some other enterprising aircraft manufacturer took over the derelict buildings at Earl's Court so as to have an aircraft factory nice and handy to Government offices. Although one has to cross the water known as Het Ij to get to the works, they certainly take no longer to reach than one would take to get from the Air Ministry to Earl's Court. It is a good example of Mr. Anthony Fokker's political as well as commercial and technical ingenuity.

One gathers from outside rumour, and not Herr Bethge, that there is some rather exciting new stuff coming through in certain of the Fokker sheds. This of course we were not invited to see, but what we did see was quite interesting and showed that the Fokker firm is keeping its place in the competition for the World's markets.

A great many Fokker machines are built under licence in European countries, which naturally cuts down the number of machines exported from Holland. And the Fokker factory in America, known as the Atlantic Aircraft Corporation, equally naturally cuts off any export to the States. But in spite of that there is plenty of work bein done at Amsterdam. There are a good many two-sea fighters going through for the Netherlands Army and severa twin-engined (Lorraine-Dietrich) machines on floats for th use of the Netherlands Navy in the East Indies.

Also there are some colossal monoplanes with a spa of about 80 feet and front spars over a metre in depth whic are to be fitted with three Jupiter engines for passenge work. They will carry about twenty passengers, and, a Herr Bethge remarked, there is enough room in the cabi for a dance floor. These are, one believes, for the projecte mail service from Holland to the East Indies.

Here one may remark that one heard from several source in Holland how much the Dutch would like to have Bristo built Jupiters instead of the French-built type. Under th licensing arrangements made when the Jupiter first becam a success the Gnôme-Le Rhône company of Paris have sel ing rights for Jupiter engines for the whole of Europe excep Scandinavia. And although the French-built Jupiters ce tainly do very well the aviation people in Holland all seem to think that they would be even happier with Britis material and workmanship.

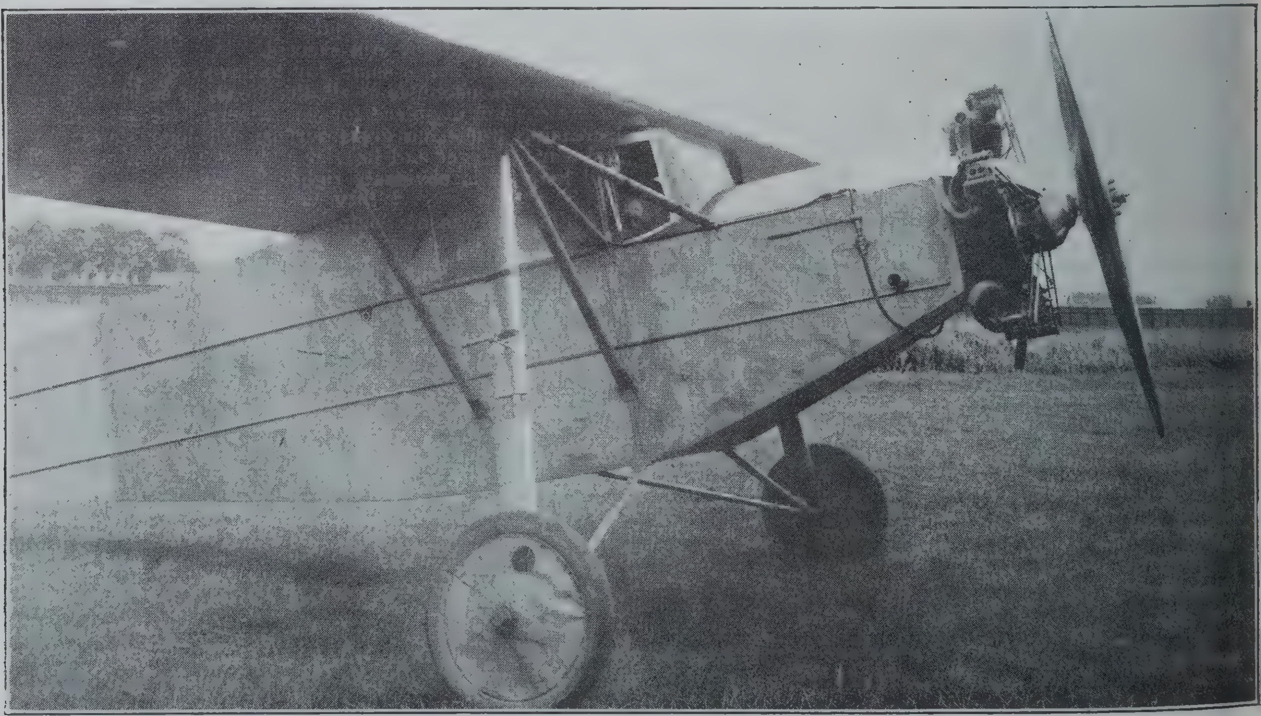
Actually in the Fokker Works itself the thing which im pressed one immediately was the utter simplicity of th Fokker method of construction, consisting as it does simpl of welded steel tube for the fuselage and undercarriage, an glued and screwed wood for the wings. The most obviou result is that there is an enormous amount of the worksho space devoted to the assembly of aircraft and a minute po tion only to the production of machined parts.

Our method of using specially machined lugs and plate and sockets all over our aeroplanes seems so stupidl extravagant both in labour and material. There is probabl more work in the wiring-plates and struts and their attac ments in the wings only of any British biplane than ther is in all the machined fittings of the whole Fokker biplan The only system in the World which compares with th Fokker is the plate and square-ended-tube method of assen bly produced by the Hawker Engineering Company an illustrated in THE AEROPLANE of Feb. 29.

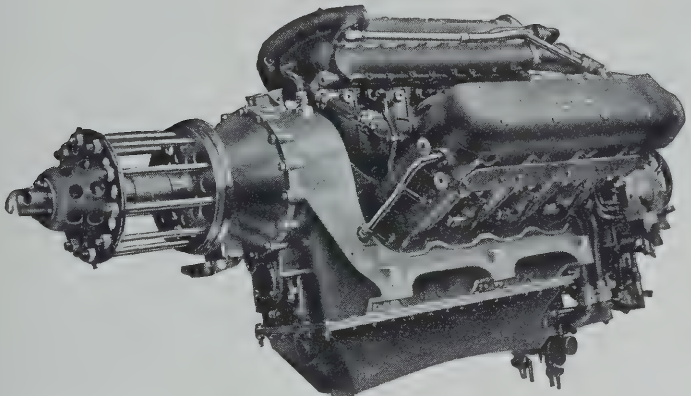
Compared with the elaborate organisation and majest machine shops of some of our British aircraft factories (exis ing, be it understood, entirely on Air Ministry orders) the Fok ker Works look almost amateurish, because everything seem to be done in the assembling shops. But if one could g at the amount of money brought into each country by expo orders, one would probably find that there are considerab advantages in the Fokker method of doing business.

AT WAALHAVEN.

After Amsterdam one paid a visit to the Waalhaven Aer drome at Rotterdam which, though it is only a way-statio and not a terminus of any air-line, is in its way just perfect as Schiphol and handles pretty nearly as ma different breeds of aircraft. Here one was taken in charg by Mr. L. F. Bouman, chief of the flying-field, who is ju



A PRODUCT OF THE LOWLANDS.—The three-seater F.K.41 (Siemens 60 h.p.), built in Rotterdam to the designs of Mr. Frederick Koolhoven.



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t has successfully passed the official 100 hour type test of he British Air Ministry.

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as proud of and keen on his job as one could wish an aerodrome manager to be.

No notable alterations in the way of new buildings have been made at Waalhaven since one was there some five years ago but there has been a good deal of new equipment in the way of landing-lights, wireless apparatus and so forth, so the whole place is thoroughly up-to-date. And of course it is utterly precise and neat like everything else in Holland.

THE ROTTERDAM FLYING CLUB.

Waalhaven, besides being a commercial aerodrome, is also the headquarters of the Rotterdam Flying Club,—which seems to be doing very well. The equipment of the Club at present consists only of two Pander biplanes which are quite good for learners but distinctly on the slow side for cross-country journeys and in that way not at all comparable with our Moths and Avians.

The members of the Club are obviously enthusiastic judging by what one heard of their doings, though when one visited the aerodrome it was too early in the morning for any of them to be at work. The members are almost all hard-working business men, and nowhere does the business man work harder than he does in Holland. Consequently most of the flying is done in the evenings and during the week-ends.

Just by way of showing how keen the members of the Club are, one was told that one member who lives somewhere in the direction of Limburg has a five-hour journey by rail to get to Rotterdam to do his flying training and the same time to get home afterwards. The trains of Holland are extraordinarily comfortable, but they are not fast. So, this member, when he has finished learning to fly, will doubtless become an owner pilot simply as a means of saving time.

THE KOOLHOVEN LIGHT MONOPLANE.

At the Waalhaven Aerodrome one had the opportunity of inspecting at close quarters the Koolhoven light monoplane which was illustrated and described in THE AEROPLANE a week or two ago. This is quite one of the best light aeroplanes that one has ever seen. And, considering that Mr. Frederick Koolhoven is a British subject, it certainly ought to be built in England as well as in Holland.

In every way it is a worthy successor of the long line of successful Koolhoven machines. Leaving out whatever share Mr. Koolhoven may have had in designing the racing Deperdussin which was the first vehicle of any kind in the World to cover 120 miles in the hour (in 1912), we may do well to remember his little Armstrong-Whitworth biplane with the 90 Raf engine and his big AckW with 160 Beardmore, which were actually designed in 1914 before the outbreak of war and were still in use at the time of the Armistice,—being in effect the only aeroplanes which were in service throughout the War.

There are those among the best of pilots who still consider that his B.A.T. Bantam, which unfortunately never had a reliable engine, was the handiest single-seat fighter ever produced. And even with that engine of 200 h.p. it had a performance just about as good as that of many single-seaters to-day with 450 h.p. or more. It was in fact in 1918 just in about the same category as that class about which people at the Air Ministry are now thinking, namely a stripped single-seat fighter with a performance equal to that of our over-loaded fighting machines with double the horse-power.

Also, we shall do well to remember that his big B.A.T. the F.K.26, which was the first commercial aeroplane ever produced in this country, and carried four passengers in a roomy cabin, with the pilot perched up behind, had with a Rolls-Royce Eagle VIII engine a performance very nearly as high as that of modern commercial aeroplanes of the same passenger-capacity with 450 h.p.

With such an ancestry the Koolhoven light monoplane well worth regarding as a serious proposition. At pres it has a 60 h.p. Siemens radial engine, and with that ho power it carries a pilot and two passengers and a fair amo of luggage, in a very comfortable enclosed cabin. Th loaded its performance is not very far behind that of popular British light aeroplanes with anything between h.p. and 100 h.p. With a first-class British engine such the Cirrus III or the Gypsy the Koolhoven monoplane oug to be rather a startling performer.

It has the wide undercarriage with the split axle wh has been characteristic of the later Koolhoven designs a the oleo-gear which is used in this has an unusually lo travel. The whole construction of the machine is extrem neat and simple, so that it ought to be very cheap to produ and consequently sellable at a low price.

Naturally one can always find critics to crab anythi and one critic of the Koolhoven monoplane complained th the ailerons were stuck on with ordinary brass door-hing A close inspection of this particular fitting showed th they are quite extra-ordinary door hinges, of such a type th the whole wing would probably tear to pieces before an thing happened to the said hinges.

Whatever criticisms experts in this country may have f called upon to make about Koolhoven machines there h never, so far as one can remember, been any question abo their strength when checked by the Air Ministry Stre Department. And there has never been anything the matt with the material or workmanship of any of his designs.

If it were introduced into this country one believes th the latest type would be very popular, especially with o of our more powerful British engines, for it gives just t accommodation which our existing machines do not gi namely, that for a pilot and a pair of passengers,—the wo "pair" connotes quite a good deal when people are co sidering taking the air.

In the Koolhoven shed work is also in progress on a hig efficiency transport machine for the K.L.M. It is a sing engined job, probably with a Bristol Jupiter, but it is i tended to carry passengers in a much higher proportion horse-power than is the habit on air transport machines t day, or conversely it is intended to have a higher perfor ance with the same load for the horse-power.

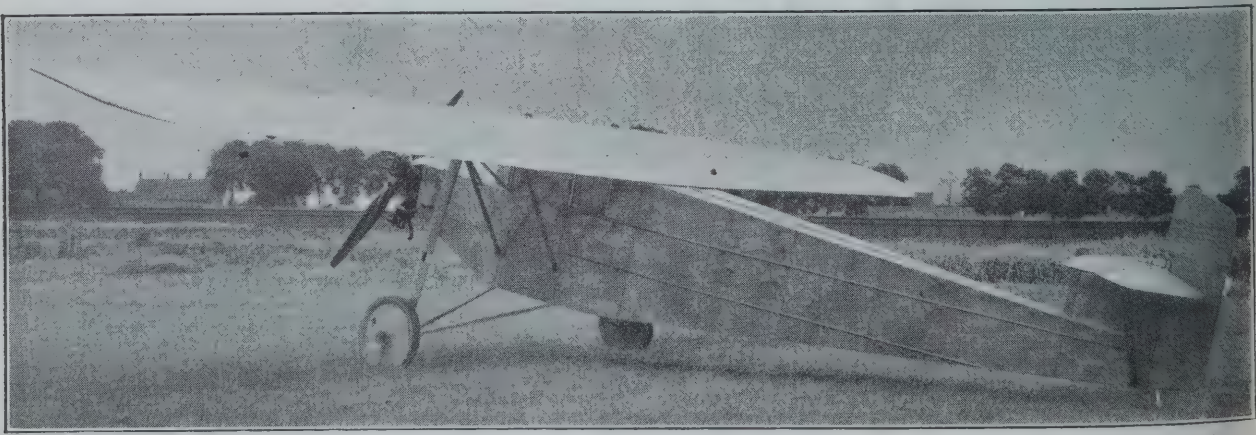
It is quite time that something was done in this directi for if a light aeroplane can get along at something li 80 or 90 miles an hour with 20 h.p. per passenger, the does seem a certain amount of extravagance in being co tent with 90 to 100 m.p.h. at anything between 50 h.p. a 70 h.p. per passenger.

Incidentally one was glad to see in the Koolhoven wor shop our old friend Tom, the Angle-Dutch woodwork e pert who has worked on all the Koolhoven machines from t old days of the Armstrong-Whitworth Works at Newcast till now. His many friends in the British Aircraft Indust will be pleased to hear that he looks just as young and certainly just as energetic as ever.

BY K.L.M. TO BRUSSELS.

From Rotterdam one travelled to Brussels in a K.L. Fokker with a French Jupiter engine. When one was at t Hague one unfortunately missed seeing Mr. Plesman, t chief of the K.L.M. Company at the Hague, but Mr. Marti the Traffic Director of the K.L.M., very courteously pr vided one with free air transport back to Belgium.

One may here note that the K.L.M. Offices at the Hag occupy the whole first floor flat of a colossal building abo as big as the Air Ministry. This again, for the good Air League enthusiasts, demonstrates the benefit of being small country in the middle of a whole network of air rout instead of being a big country at the extreme tail end of t



THE KOOLHOVEN F.K.41.—A three-seat cabin monoplane fitted with a 60 h.p. Siemens air-cooled radial engine.

THE 1928 ROYAL AIR FORCE AIR MANOEUVRES

Extracts from Official Communiqués

" . . .the "Foxes" proved too fast, and no casualties were claimed.
14.8.28

" The most interesting feature of this evening's operations was an attempt to intercept the fast "Fox" bombers" . . . "but once more the "Foxes" escaped, thanks to their great speed." 15.8.28

Extracts from Daily Press

"The sensational feature of the manoeuvres has been the ability shown by a high-performance bomber, the " Fox," to escape interception, a number of these "Foxes" have run the gauntlet of the defences again and again," . . . "the "Foxes" actually outstripped the machines that were intended to cut them off and succeeded in dashing out of the war-zone unscathed." "In the vital próblem of bomber v fighter, the ' Fox" has scored an emphatic triumph for the former."

The " Daily Mail." 17.8.28

"One of the most remarkable facts emerging from the manoeuvres is the extraordinary success of a fast type of bomber known as the "Fox."

"A squadron of these machines, flying at great heights and speeds, has penetrated the defence zone again and again' . . . . "the bombers proved actually faster than their assailants, and managed to escape without losses." "They have gained a signal triumph."

The "Daily Chronicle." 17.8.28

"In the judgement of the experts the only type of bombers that are of any use for this work are high speed, self-fighter bombers, such as the Fairey Napier III. F. and the 'Fox.' "

The "Evening News." 17.8.28

The Fairey Aviation Company were the originators of the high-performance day-bomber. It is the application of intensive scientific research and careful attention to streamlining that has rendered possible the outstanding performance of modern Fairey Aircraft.

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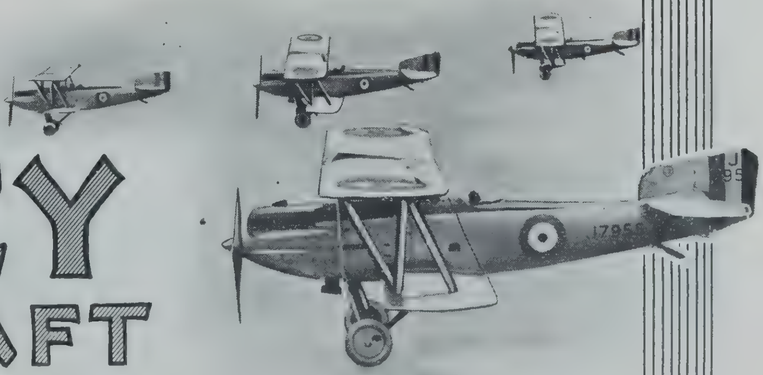
Hayes, Middlesex



FAIREY
AIRCRAFT

or three air lines. The K.L.M. people handle the booking and aerodrome arrangements of practically every line which uses the same aerodromes as they do in Holland, so that clerical work involved, on top of handling their own private affairs, is immense, and one gathers that it is very efficiently done.

Our journey from Rotterdam to Brussels was a thoroughly international affair. The pilot, Mr. Soer, is a Netherlander, and like all the K.L.M. pilots a thoroughly good aviator. The machine was an 8-seater Fokker F.VII, and as the great Anthony is a Dutch-German-American, it may be regarded as fairly international intellectually. The duralumin airscrew was a German-built Reed and the engine was a French-built Bristol Jupiter. The passengers were British, American, Dutch and Belgian.

Here one may remark that the seating (in cane chairs) was as comfortable as one could wish,—which the seats in our own air-liners are definitely not. Also that conversation was less difficult than it is in a tube train. And that there was hardly any more vibration from the engine, or from airscrew slap, than one gets in a well-behaved car. It was the most comfortable aeroplane in which one has yet flown.

Possibly because of their international responsibilities, the K.L.M. have issued standing orders that their pilots must fly high. This is very wise, for Holland is no country in which to go hedge-hopping. If an engine did stop the pilot would probably have to glide a considerable distance to find anything like a possible landing ground. The fields look very nice from above, but when one is close to them they are all ridge-and-furrow, interspersed with canals anything between three feet and thirty yards wide.

Thanks to the efficiency of the K.L.M. maintenance, engine failures are rare. But the pilots know their routes so well that so far whenever they have had a forced landing they have managed to get away with it without hurting anybody. Long may they continue to do so.

The Northward journey from Brussels to Rotterdam on the Edelweiss Express, the crack train of the "Company International of the Waggon-Beds," which runs between Lucerne and Amsterdam, via Basel, takes three and a half hours. Incidentally, the Dutch Government charges you two gulden per head for entering Holland in a corridor train,—a very good stroke of business. The journey from Rotterdam to Brussels by aeroplane with a very strong South-West wind on the starboard bow, took three-quarters of an hour.

One has hardly passed over Antwerp, with its colossal system of docks, than one is looking down on Mechlin, and before one has done looking back at Mechlin, Brussels is in sight ahead. And this little bit of the journey takes about an hour by rail. Which is another good reason why air transport on the Continent is more popular than it is in this country, where eighty-mile-an-hour aircraft have to compete with sixty-miles-an-hour trains.—C. G. G.

(To be continued.)

AN ACQUISITION TO THE GUGGENHEIM FUND.

Captain Emory S. Land, Construction Corps, U.S.N., has been appointed to the office of Vice-President of the Daniel Guggenheim Fund for the Promotion of Aeronautics. Captain Land will fill the office recently left vacant by Rear-Admiral H. I. Cone, who has been appointed to the Shipping Board by President Coolidge. The Navy Department has released Captain Land for a period of a year, and he will assume his new functions as soon as he is relieved of his present duties as Assistant Chief of the Bureau of Aeronautics.

Captain Land, familiarly known to the U.S. Navy and to U.S. Service Aviation as "Jerry" Land, has a record of some thirty years in the Navy Department. Since 1919 he has been directly connected with aeronautical work in t department, but long before that, during the War, he l to do with Naval aviation. After graduating with hono from the U.S. Naval Academy in 1902, he later received degree of M.A. from the University of Wyoming in 19 and in the same year the degree of M.S. from the Massac setts Institute of Technology. He is a member of National Advisory Committee for Aeronautics.

Captain Land was awarded the Navy Cross for serv during the War 1917-18, which included the designing construction of submarines, and work in the war zone. was awarded a C.B.E. by the British Government for w in the war zone during the War and was a member of Allied Naval Armistice Commission.

IMPERIAL AIRWAYS FINANCE.

The following notes on the improvement in the finan position of Imperial Airways Ltd. appeared in *The Times*

The preliminary figures of the Imperial Airways, Limit for the 12 months ended Mar. 31 indicate so marked an provement in results that the directors are able to decl their first dividend—namely, 5 per cent.

Net profits for the period mentioned amounted to £72, against £11,461 for 1926-27. A debit balance of £24,171 brought forward from that year, and this has, of cou been extinguished before declaring the dividend.

Further, the board also propose to write off one-half the preliminary expenses and underwriting commissi This will absorb £20,663, the preliminary expenses hav stood at £23,032, and the underwriting commission at £18,

Any benefit which the company may derive from the agreement with the British Government, under which Government subsidy now amounts to £2,760,600 spread 11 years from April 1 last, will, of course, affect the res of the current and future years.

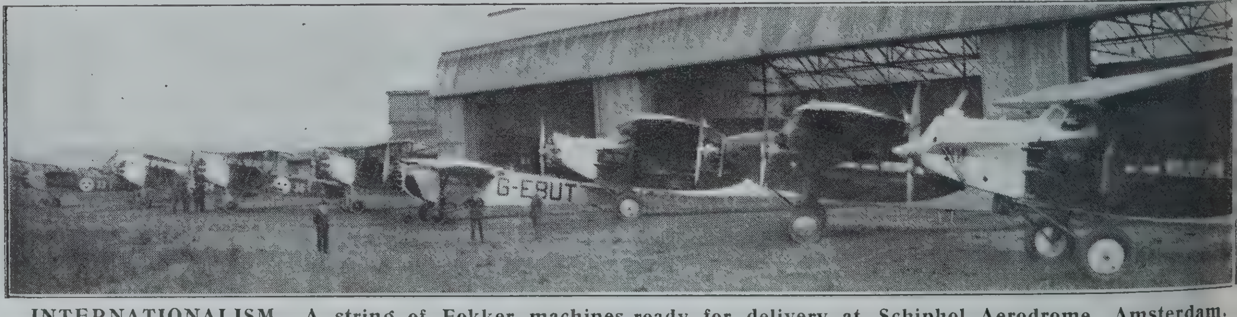
Until the issue of the full report definite knowledge of factors principally responsible for the fine results now nounced is lacking, but the previous report showed dist progress, the better trading results then disclosed being tributed mainly to the board's policy of aiming at the crea of a goodwill based on safety and reliability and the emp ment of multi-engined aeroplanes in pursuit of this polic

MILLIONAIRMANSHIP.

All the fuss which has been made in the papers about secret flight in a Short Calcutta (three Bristol Jupite from Queenstown (South Ireland) to France by Mr. W. Leeds, husband of Princess Xenia of Greece, appears to the usual newspaper bunkum. Mr. Leeds, who is a lionaire by inheritance and about twenty-five years of has long been interested in flying. For example, he is owner of the Fokker monoplane, *Princess Xenia*, in w Messrs. Macintosh and Hinkler attempted to fly non- from England to India, when they were stopped by weather in the Caucasus, and he has done a vast amour flying as a passenger himself.

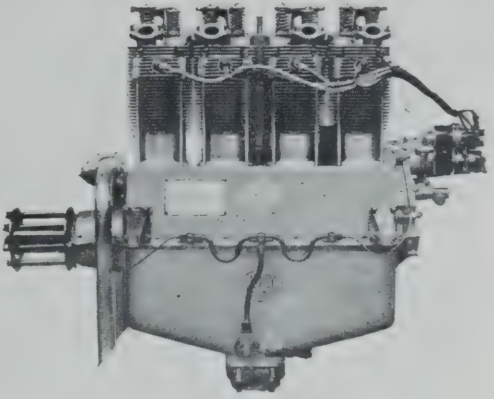
He came over from the States last week in the *Scy* and had a desire to go to Paris on business and get to Cherbourg in time to meet some friends coming over f the States in the *Aquitania*. Being a millionaire, the cha ing of a little thing like the Calcutta from Imperial ways, to whom two of these craft have now been delive was nothing to him, so the Calcutta duly met him at Que town and flew him to Cherbourg. Thence he went to in a French aeroplane, being a brave man as well millionaire, and is returning from Paris in time to meet *Aquitania*.

One gathers that his friends in the *Aquitania* are President of an American airplane operating company



INTERNATIONALISM.—A string of Fokker machines ready for delivery at Schiphol Aerodrome, Amsterdam. From left to right: Four Fokker C.V-E (Jupiter) reconnaissance machines for the Swedish Government, who also have bought the licence for this type; a Fokker Universal (Wright Whirlwind) commercial machine bought by Lord Carbery for East Africa; a Fokker F.VII (Jupiter) commercial machine for the Danish Air Traffic Co., who have a number of these machines on their air lines; one of a series of four three-engined Fokker F.VII-3m (Lynx) commercial machines for the Dutch East-Indies Air Traffic Co.; one of a series of six F.VII (Lorraine-Deitrich) commercial machines for the Polish Company, Aero Poznan. The Polish Government have bought the licence for the F.VII and F.VII-3m.

Cirrus”



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LONDON — CAPETOWN in 13 DAYS.
LONDON — CAPETOWN. Lady Pilot.
CAPETOWN — LONDON. Lady Pilot.
1st KING'S CUP AIR RACE, 1926.
1st KING'S CUP AIR RACE, 1927.
BRITANNIA TROPHY, 1927.
1st SIDDELEY TROPHY. 1928.
etc., etc.

“CIRRUS” engines are in use by The British Royal Air Force, 50 Light Aeroplane Clubs, and 26 Different Countries and are fitted in D.H. “MOTH,” AVRO “AVIAN,” WESTLAND “WIDGEON,” SIMMONDS “SPARTAN,” SHORT “MUSSEL” and 21 Foreign Types of Light Aeroplanes, in GERMANY, ITALY, JAPAN, SWITZERLAND, CANADA, U.S.A., etc.

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rn 4076.

Telegram—
Airdisco, London.

the chief pilot of a big American manufacturing firm. His idea is to take them with him on a tour of the leading aircraft factories and air-ports in Europe to gain experience with the idea of ultimately developing something big in aviation in the States.

The practical interest which Mr. Leeds is showing in aviation deserves every commendation and encouragement. There are other millionaires whose interests in aviation are considerably less productive of praiseworthy results.

SPEEDING ATLANTIC MAILS.

At 07.00 hrs. on Aug. 23, *Lieut. de Vaisseau* Demougeot was catapulted from the French liner *Ile de France* in a Lioré-et-Olivier amphibian flying-boat with a load of mails some distance west of the Scilly Isles and alighted in Cherbourg harbour at 11.30 hrs. He left Cherbourg again at 12.45 hrs. and landed at Le Bourget at 14.55 hrs. where he handed over the two bags of mail, comprising some 8,000 letters, to the postal authorities. The contents of the mail bags were delivered in Paris the same afternoon, nearly 24 hours before all the other mails carried by the *Ile de France.*

When Lieut. Demougeot left the *Ile de France* the ship was rolling at 23 degrees and he met bad weather all the way to Land's End which necessitated his stop at Cherbourg for petrol.

CATAPULT AIR MAILS.

The Postmaster-General announces that beginning with the dispatch of Aug. 29 by the *s.s. Ile de France,* and on each future outward voyage of that ship (i.e., Sept. 19, Oct. 10, and every three weeks thereafter), letters and postcards, registered or unregistered, for the United States of America will be accepted for inclusion in a mail to be conveyed to New York by an aeroplane which will be dispatched by catapult from the ship before arrival at New York. The arrangement should enable the correspondence to reach New York about a day before the arrival of the ship.

Correspondence should be posted in the ordinary way, and marked "Catapult Air Mail: Per *s.s. Ile de France,* Via Plymouth." The usual air mail label should also be affixed. Latest time of posting at General Post Office, London: noon on date of dispatch. A special air fee will be payable, in addition to ordinary postage; and a registration fee if necessary. Letters and postcards: 2s. 6d. per ½ oz.

If air transmission in the United States of America is also desired, the usual air fee of 9d. per ounce must also be prepaid (see Air Mail leaflet, obtainable from any post office).

POLAR EXPLORATION AND AIRSHIP DOPE.

The following letter from a technical correspondent is worthy of note:—

With reference to notes re above in your issue dated July 25 (page 242), it may be suggested that the writer has built up rather a heavy structure upon an insubstantial foundation.

Rumour has it that the fabric of the *Italia* was treated with acetate dope of French origin followed by the statement that "among some technical people the opinion is expressed that this species of dope is particularly liable to absorb moisture from the air," appear slender premises for the suggestion that "one commends to the Italian authorities, who must naturally be interested in clearing up the reason for the wrecking of the *Italia* and the loss of so many lives, that they should investigate carefully the whole subject of acetate versus nitro dopes."

Indeed, the only substantial statement in the whole paragraph—"against this rumour the statement is made that our rigid airship R.34, which flew across the Atlantic and back, was treated with an acetate dope"—would appear to commend to the Italian authorities that they should investigate carefully the whole subject and place their next Dope contract with British Celanese Ltd., who supplied the Cellulose Acetate Dope which rendered possible the historic voyage of R.34.

Now for another—not "rumour," nor "opinion of some technical party"—but fact. The difference in the water absorption factor as between a good Acetate dope and a good Nitro dope is so minute as to be altogether negligible. Nitro dopes are inferior to Acetate dopes in several particulars, but here the two meet on common ground, in that, granted in each case a good scheme well applied, there are no conceivable circumstances where the moisture absorption of either could result in a dangerous weight factor for any Airship.

To conclude, the following extract from the cross-Atlantic log of General Maitland, of the Celanese-doped R.34, should be of interest:—

> As we lay in our hammocks we listened to the rain beating pitilessly down on the outer cover of our trusty ship of the air, and our feelings, despite the weather, were those of complete confidence and security.

ANOTHER ATLANTIC FLIGHT FAILU

No further authentic news has been received of Mr. Hassell and Mr. Parker Cramer, who left Coch Ont., on Aug. 18 to fly to Greenland on the second sta their attempt to fly from Rockford, Ill., to Stockholn way of the North Atlantic.

Various wireless messages were alleged to have been pi up by a wireless amateur but the American Radio League has now offered a reward of $500 for the apprehe of this person as the messages are believed to have faked.

A PACIFIC FATALITY.

On Aug. 25 a Ford three-engined monoplane belon to British Columbia Airways left Victoria, B.C., to fl Seattle, Wash., on the recently inaugurated Triangle vice between Victoria, Seattle and Vancouver, and then no further news has been received of the machine

It carried two pilots and four passengers, two of w were Mr. Alexander McCallum Scott (the well-known and journalist and former M.P. for the Bridgeton Div of Glasgow) and his wife. Patches of oil and two hats been found off the Washington coast.

THE HUCKNALL ACCIDENT.

A verdict of "Accidental death" was returned at Huc on Aug. 24, on the bodies of Robert Anthony Blake, William Richardson, two members of the Nottingham Club, who were killed when flying on Aug. 22 at H nall.

Bernard Martin, pilot instructor to the Nottingham Club, said that he was present when the two men wen and the machine was in perfect order. Blake was a me of the club and a qualified pilot holding an Air Mir certificate Class A. He had done a considerable amou flying and always flew consistently well.

William Garland Spencer, a welfare supervisor and ca of the local Boys' Brigade, said that his boys were in in a field adjoining the aerodrome. He was having t a tent when he heard the machine come over. It se to be flying very low. Suddenly the engine shut off. jumped up and saw the machine strike the ground. He towards it, and when within 50 yards of it there was a te explosion and flames rose to a great height.

A PIONEER'S PERIL.

On Aug. 24 Mr. Eustace Short, after making a pra flight over the Medway in the Short Mussel seaplane, s the top-hamper of a motor cabin-cruiser but was ab crawl onto the boat before the Mussel capsized. He coming in to alight across the river into the wind and o to a slight mist did not see the boat until too late. attempted to take off again, but just failed to clear.

Mr. Eustace Short is one of the famous Short Brother has learned to fly in the last twelve months at the age He was taught by Mr. Lankester Parker on the Short M seaplane and this year has done a considerable amou flying on this machine equipped either as a landplane o plane.

AIR SURVEY IN EGYPT.

The Aircraft Operating Company has just complete experimental survey of a small area of the Fayum Pro at the request of the Surveyor-General of Egypt. The was entirely successful.

GIPSY-MOTHS FOR DENMARK.

The De Havilland Aircraft Co. Ltd. has been awar contract for the supply of eight Gipsy-Moths to the D Air Force. The machines will be used for training and replace the heavier and more expensive types now in They will be flown from London to Copenhagen by D officers.

MOTHS IN CANADA.

Great Western Airways of Calgary, Alberta, have delivery of two D.H. Cirrus-Moths which it will use fo struction.

SERVICE.

The following letter has been received from Flt. Lt. W Wakefield, R.A.F.O., the famous Rugby Football expe

Sir,—I had the misfortune to break the propeller o Moth and tear the fabric of the wing on some barbed in a rather inaccessible place in North Devon late Saturday afternoon. It was 8 p.m. before I was able to phone through to the De Havilland Company at Stag for a new propeller, some fabric and dope, yet withi hour they had these materials on the train. The reached me on Sunday afternoon and enabled me to the air again within forty-eight hours.

Such service is surely worthy of record. I should to know what motor-car manufacturers could replace a part in this manner on a Saturday evening.

(Signed) W. W. WAKEFIE

There is an air cooled **ARMSTRONG SIDDELEY** engine for every class of aircraft.

From 80 to 750 h.p. and from 5 to 14 cylinders.

ARMSTRONG SIDDELEY MOTORS LIMITED,
Coventry, England, and 10, Old Bond Street, London, W.1.

FLOWN AND KNOWN ALL OVER THE WORLD

THE ROYAL AIR FORCE.

The London Gazette.

Aug. 21.

General Duties Branch.—The following flight cadets having successfully passed through the R.A.F. College, Cranwell, are granted perm. comns. as Plt. Offs. with effect from and with seniority of July 28 :—J. T. Stephenson, F. Whittle, A. E. Dark, W. R. Worstall, C. B. Hughes, E. M. F. Grundy, J. Mutch, H. R. Dale, R. B. Councell, A. L. Weait, R. J. Cooper, H. J. Pringle, G. N. E. Tindal-Carill-Worsley, J. W. Homer, J. A. C. Stratton, R. D. Williams, L. F. Sinclair, C. Ryley, N. E. White, E. J. Lainé, J. E. Jorgensen, C. V. J. Pratt, J. J. Owen, A. Wall, R. A. Sprague, A. L. Franks, P. W. A. Dudgeon, F. P. Hewitt, J. G. Llewelyn.

Plt. Off. A. McKee is promoted to the rank of Flg. Off. (July 4). Sq Ldr. A. R. C. Cooper is placed on the retired list at his own request (Aug. 22).

Medical Branch.—Flg. Off. E. A. Rice, M.B., is promoted to the rank of Flt. Lt. (Aug. 16). Flt. Lt. C. S. de Segundo, O.B.E., V.D., M.B., B.S., relinquishes his temp. comn. on completion of service (July 25).

Reserve of Air Force Officers.—General Duties Branch.—The following Plt. Offs. on probation are confirmed in rank :—D. H. F. Barnett, M. G. Candy, P. Drummond (Aug. 15); E. Batchelor (Aug. 16). Flg. Off. R. R. Money is transferred from Class A to Class C (Aug. 19). The following relinquish their comns. on completion of service :—Flt. Lt. D. H. Dabbs (Aug. 20); Flg. Off. D. W. Forshaw (Aug. 4). Flg. Off. C. H. E. Coles relinquishes his comn. on completion of service (June 16) (substituted for the notification in the *Gazette* of July 31).

Medical Branch.—Sq. Ldr. E. P. Punch relinquishes his comn. on completion of service (July 13).

Auxiliary Air Force.—General Duties Branch.—No. 603 City of Edinburgh (Bombing) Squadron.—The following Plt. Off. to be Flg. Off. :—A. R. H. Miller (Aug. 1).

Appointments.

Week ending Aug. 27.

General Duties Branch.—Wing Commanders P. A. O. Leask, to H.Q., Halton, for Technical duties, 21/8. G. W. Murlis-Green, D.S.O., M.C., to Aircraft Depot, India, 29/7. J. V. Steel, O.B.E., to H.Q., 'Iraq, for Personnel Staff duties, 17/8.

Squadron Leader R. S. Aitken, M.C., A.F.C., to No. 41 Sqdn., Northolt, 1/9.

Flight Lieutenants C. K. Chandler, M.B.E., to School of Photography, Farnborough, 18/8. C. R. Keary, to H.Q., Air Defence of Great Britain, Uxbridge, 1/9. C. B. S. Spackman, D.F.C., to No. 8 Sqdn., Aden, 17/8. H. S. P. Walmsley, M.C., D.F.C., to No. 603 (City of Edinburgh) Sqdn., Turnhouse, 13/8. R. R. Greenlaw, M.B.E., to Armament and Gunnery School, Eastchurch, 20/8. W. E. Dipple, to No. 39 Sqdn., Bircham Newton, 3/9.

Flying Officer G. R. Weighill, to No. 26 Sqdn., Catterick, 20/8.

Pilot Officers I. B. Beesley and O. G. Williams, to No. 70 Sqdn., 'Iraq, 2/8. M. G. Sedorski, to No. 84 Sqdn., 'Iraq, 2/8. P. W. M. Wright, to No. 30 Sqdn., 'Iraq, 2/8. S. Pritchard-Barrett, to R.A.F. Practice Camp, Sutton Bridge, 16/8.

Stores Branch.—Squadron Leader W. F. Bryant, to H.Q., Air Defence of Great Britain, 22/8.

Flying Officer O. W. T. Rogers, to No. 4 Stores Depot, Ickenham, 18/8.

The R.A.F. Cadet College.

The following cadets successfully completed on July 27 their course of training at the Royal Air Force Cadet College, Cranwell, the names being arranged in alphabetical order :—

R. J. Cooper, R. B. Councell, H. R. Dale, A. E. Dark, P. W. A. Dudgeon, A. L. Franks, E. M. F. Grundy, F. P. Hewitt, J. W. Homer, C. B. Hughes, J. E. Jörgensen, E. J. Lainé, J. G. Llewelyn, J. Mutch, J. J. Owen, C. V. J. Pratt, H. J. Pringle (winner of Air Ministry prize for Humanistic Subjects), C. Ryley, L. F. Sinclair, R. A. Sprague, J. T. Stephenson, J. A. C. Stratton, G. N. E. Tindal-Carill-Worsley (winner of R. M. Groves Memorial Prize), A. Wall, A. L. Weait, N. E. White (winner of Sword of Tonour), F. Whittle (winner of A Gerrard Fellowes Memorial Prize), R. D. Williams, W. R. Wors (winner of Air Ministry Prize for Aeronautical Engineering).

In addition to the above, the undermentioned flight ca has passed the examination, but will return to the Coll to complete flying training :—J. A. Easton.

New Flying-Boat Bases.

The War-time Seaplane Station at Cattewater is to re-opened in the near future as a Flying-boat Base. A Coastal Reconnaissance Flight equipped with Supermar Southamptons (Napier Lion engines) will be formed th and after preliminary training will proceed to a new base the Persian Gulf.

The persistent rumour, officially denied by the Air Minis only a fortnight ago, that a Flying-boat Base is to be est lished at Stranraer, was confirmed on Aug. 21 when Stranraer Town Council, at a special meeting, agreed grant an application by the Air Ministry for an occasio aircraft base. A request was made by the Air Ministry an early reply to the application as they wished to m use of the harbour during the September exercises in wh the R.A.F. would co-operate with the Fleet.

The Far-East Flight.

The four Supermarine Southampton flying-boats (Nap Lion engines) of the Far-East Flight, R.A.F., under command of Group-Capt. H. M. Cave-Browne-Cave, D.S. D.F.C., arrived at Cooktown, Queensland, on Aug. 24 *route* for Singapore.

Princess Mary's Nursing Service.

The First Re-Union dinner of Princess Mary's Royal Force Nursing Service will take place at the Richel Rooms, Hotel Cecil, Strand, W.C.2, on Friday, Sept. 21, 8 p.m., with the Matron-in-Chief, Miss J. M. Cruicksha C.B.E., R.R.C., in the Chair.

Past members will be cordially welcomed to attend, tickets, 12s. 6d. each, may be obtained on application Miss M. Welch, Matron, P.M.R.A.F.N.S., Air Minist Kingsway, W.C.2

After dinner guests may, if they so wish, join in dancing in the Palm Court.

MEXICO CITY—HAVANA.

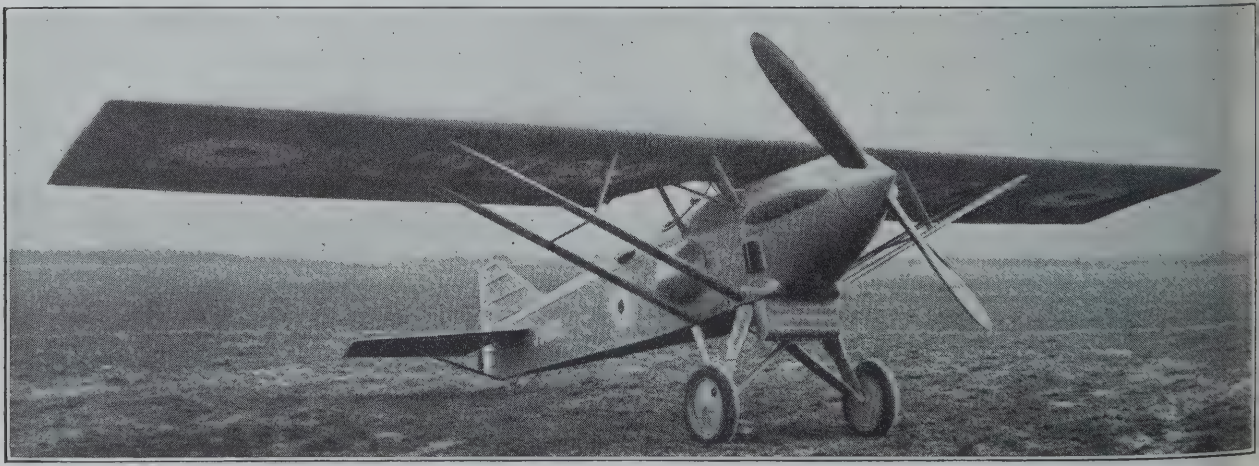
At 05.15 hrs. on Aug. 11, the Mexican pilot, Fierro, Mexico City in secret to fly to Havana. Fifty-se journalists, twenty-four photographers, thirty-two cine operators and a delegation of cigar growers assisted making the event one of the strictest intimacy.

At 19.57 hrs. the same day Fierro landed at Havana, wh he was received with the greatest pomp by the proprie of the local Ford garage and the aerodrome watchman.

AN IGNOMINIOUS END.

A large aeroplane equipped with a complete "talki movie" outfit was advertised by the Atlantic Coast Airw Corporation to give a cinema show during its flight fr New York to Atlantic City.

Soon after taking off with eleven passengers the mach descended in New York Harbour where it remained helpl for two hours, the frantic shouts of the occupants being tak for cheerful salutes by passing harbour craft.



ANGLO-FRENCH.—A Wibault 122 two-seat all-metal fighter monoplane fitted with a 450 h.p. Napier Lion engine.
("L'Aéronautique" photograph.)

AERONAUTICAL ENGINEERING

SUPPLEMENT TO "THE AEROPLANE"

WHEEL BRAKE EQUIPMENT FOR AIRCRAFT.

By G. H. Dowty, A.F.R.Ae.S., M.I.Ae.E.

Brake equipment for aircraft, after lying dormant for many ars, has come into prominence again. Of the difficulties d dangers usually associated with this form of braking, ne are real, others purely imaginary, and it may be that premature death of those earlier wheel brakes was due st as much to prejudice as to any inherent faults in design. -day that prejudice is practically non-existent because it realised that the advantage of brake equipment does not d with decreasing the length of run to pull-up, but pro- les the aeroplane with a positive steering means when ki-ing.

The principal danger alleged against wheel brakes is th k of the machine nosing over, but it has been proved at if the landing wheels are placed slightly forward of their rmal position, braking can be obtained up to the skidding int of the wheel.

Placing the wheels further forward will increase the tail ding but this point is not a serious one and suitable pro- sion for this can be readily made.

Possibly the chief disadvantage of wheel brakes is found in weight of the extra equipment and it is apparent from veral undercarriages, of English and American type, that increase is approximately of the order of one per cent. the total all up weight. This indicates that the under- rriage weight has increased approximately twenty-five per nt. Although the advantages of wheel brake equipment are disputed yet this additional weight detracts from their value. The writer has investigated several types of braked under- rriage and discovered that the increase in weight is only rtly due to the weight of brake drums, shoes and oper- ng gear. At least half of the increased weight is directly e to the heavier structure required for transmitting the que loads. Bearing in mind that the aerodynamic char- teristics of the undercarriage are not improved by the addi- n of brakes, the writer believes that during the next few ars the undercarriage will undergo considerable changes d an indication of these suggested improvements will be ecasted later in this article.

BRAKE REQUIREMENTS.

The essential requirements of braked undercarriages are :—

(1) Independent operation to each wheel.

(2) Locking means to hold the brake in the "on" position.

(3) Self-energising or "servo" operated brakes.

(4) Accurate mounting for wheels on axle.

(5) Adequate provision for taking torque loads.

If the above requirements are met then the following advantages can be obtained :—

(1) The engine may be "run up" without the use of wheel chocks.

(2) The machine can be manœuvred and taxied about under perfect control without external assistance.

(3) The length of run to "pull up" is reduced to a minimum, thus enabling safe landing to be made in restricted spaces.

(4) The tail skid can be replaced by a small wheel with the double advantage of reducing length of run to take off and preventing the surface of the aerodrome from becoming torn.

CONTROL.

Separate control to each wheel can best be carried out by pedals mounted on the rudder bar, so that greater braking may be applied to one wheel. Directional control is possibly the most important function of the brake and unless this provision is made the full utility of the brakes cannot be developed.

Figure 1 illustrates a method for mounting pedals on the rudder bar. The pedal movement required depends essentially on the weight of the machine, wheel and brake drum diameters and velocity ratio of the pedal to the brake shoes. On a normal design with a twelve-inch diameter brake drum, a pedal movement of approximately three inches will be required for a machine of 3,000 lbs. total weight and five-inch movement for a machine of 10,000 lbs. total weight.

When considering methods of control it is interesting to review a means that has often been suggested, that is operating the brakes from the tail skid. Though such a means appears attractive in that it definitely prevents the machine from nosing over, yet this system is open to criticism because independent wheel control cannot be provided and in any case a cut-out would be required during take off.

TYPES OF BRAKE.

There are many types of brakes in use on automobiles but the most attractive types are those using internal expanding shoes. A most necessary condition is the provision of adequate protection against grit, oil or mud entering the brake drum. The internal expanding shoe brake permits of the entire mechanism being built into the wheel and thus in addition to the protection afforded, the brake does not increase the aerodynamic drag of the wheel.

It is a necessary feature of aircraft brakes that the system of shoes should be of the self-energising type or have a servo operating gear. It will be appreciated that with pedals mounted on a swinging rudder bar, large pedal loads cannot be held with comfort and, furthermore, if large forces are required on the pedals then the controls to the wheel must be robust and correspondingly heavy.

Considerations of weight make any form of servo-gear a serious problem. Several methods of servo operation have been proposed, but the writer does not think that any servo-motor carried apart from the wheel should be considered. In the case of an oil or pneumatic servo-gear, it is not practical to store the motor in the cockpit because while the undercarriage is of the flexible type this would necessitate attaching the pipe lines to moving members and the possibility of satisfactory operation under such conditions is remote.

Figure 2 illustrates a form of pneumatic servo-motor contained within the brake drum and mounted on the brake shoe bracket. A series of cams "A" are mounted on the end of the brake drum such that rotation of the wheel displaces the rollers and pumps air into the plunger operation chamber "B." Control of the brake pressure is obtained by valve "C."

A further servo-mechanism is illustrated in a recent Patent No. 274,144 (Mr. Villiers). In this case the fluid pressure

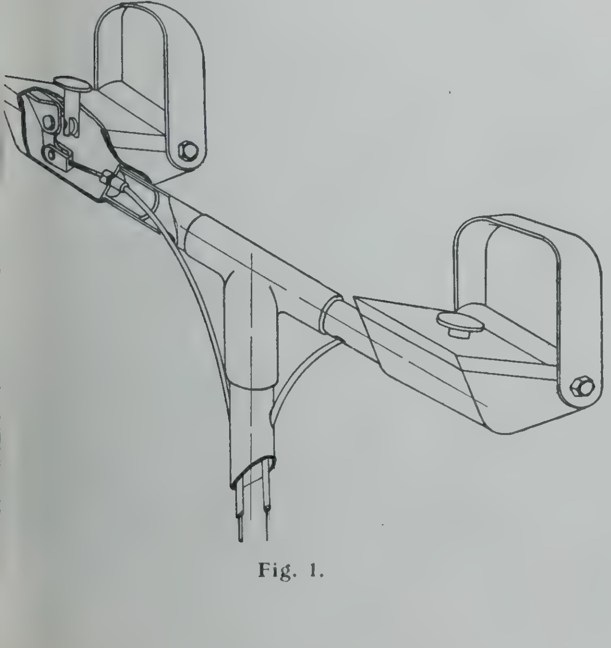


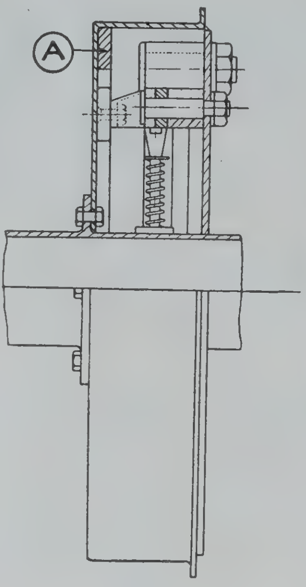
Fig. 1.

is active on a large annular brake disc and consequently quite heavy braking loads can be held for comparatively small pressures.

Though there may be scope for such systems as these for aircraft of 10,000 lbs. weight and over, yet, for lighter machines there is possibly no necessity for means other than the self-energising brake. In this category falls the Bendix Brake, and I am indebted to Mr. Clark, of the Bendix-Perrot Brake Co., for permission to publish the following particulars of their self-energising brake unit.

Figure 3 shows the arrangement of the Bendix Aeroplane Brake shoe system.

The primary shoe "A" is articulated to the secondary shoe "B" at the point "C" and is not anchored to the brake drum. It will be seen that when the machine is running forward a very definite energising action occurs in connection with the primary and secondary shoes, due to the action of the shoe "A" on shoe "B" through the pin "C." The location of the pin "C" and anchor pin "D" have been carefully selected to provide effective braking.



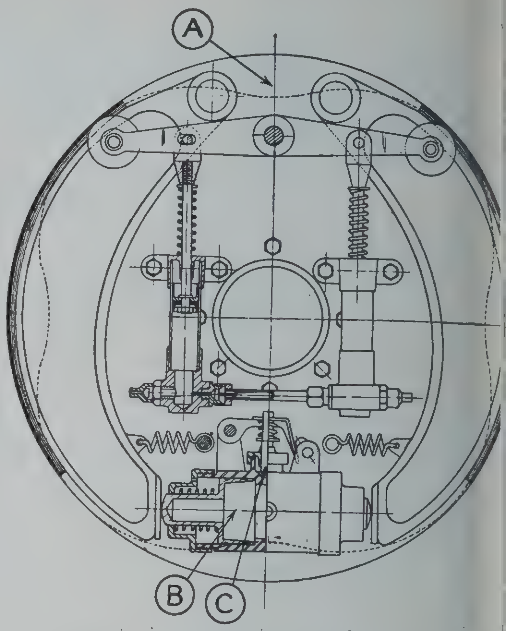


Fig. 2.

An interesting feature of the Bendix wheel, shown in section on Figure 4, is that braking is taking directly on the duralumin drum.

WHEEL MOUNTING.

A particular point to watch in connection with wheel mounting is the tolerance of the axle diameter and the diameter of the wheel hub. If too great a tolerance is allowed then the brake drum will be off centre in relation to the brake shoes and uneven contact of the shoes may result.

It is possibly unfair to criticise the additional weight of the braked type of undercarriage at so early a date. Like most new mechanisms, a certain experimental period must occur during which time the designer is more concerned with the production of a satisfactory article than in risking failure through lack of strength.

Nevertheless, when considering the undercarriage structure in connection with brake requirements the writer considers that a lighter structure and one giving less aerodynamic drag would result if a rigid structure were employed. This form of undercarriage would necessitate the use of a sprung wheel of some form or other. While this scheme has been suggested on many occasions, yet the reduction of resistance alone has evidently not proved sufficient inducem for the manufacture of such a wheel.

Now that there are further advantages to be gained fr this type of wheel there is no doubt that some solution this problem will be found. Figure 5 shows a section throu a disc wheel incorporating a brake drum and the large ternal space should be noted. There is little doubt that t space will ultimately be utilised for housing the springi shock-absorbing and braking mechanism. Although it is possible to enter into any further details at the present ti the writer hopes to shortly give particulars of developme that are taking place in this direction.

[Although Mr. Dowty's article has quite a different sc to the article by Mr. H. Bolas—also bearing on wheel bra —published in AERONAUTICAL ENGINEERING of May 30—it nevertheless noticeable that there is a marked disagreem between these two writers as to the desirability of tail-s operated brakes. It may be suggested that Mr. Dowt method of controlling brakes by pedals on the rudder ba not the only or even the most satisfactory way of provid steering control and that tail-skid operated rudder-modulated brakes could quite simply be arranged.—ED.

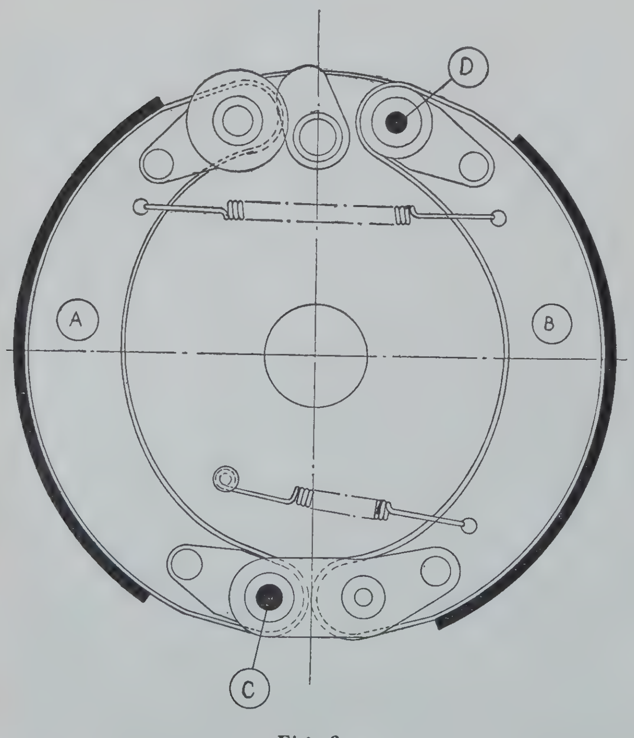


Fig. 3.

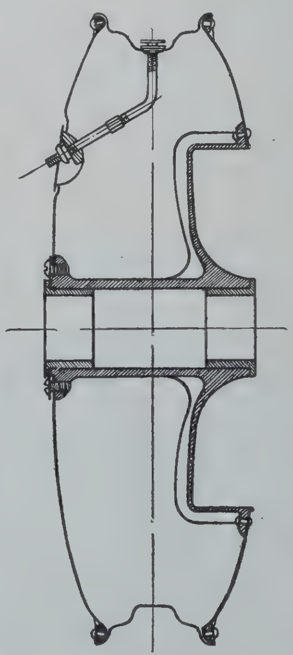


Fig. 4.

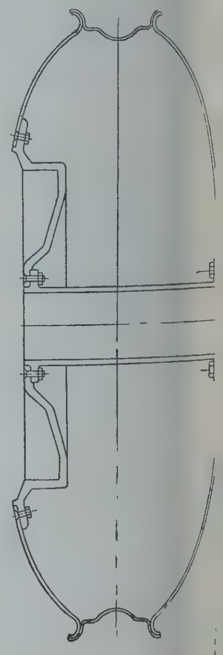


Fig. 5.

"Bristol"

Commenting on the "Bristol" Single-Seater Fighter shown at the Paris Aero Exhibition "THE TIMES" of June 30th, 1928, stated :—

"A Single-Seater Fighter shown by the Bristol Aeroplane Company . . . . very considerably surpasses any other in the Show in performance, ingenuity of design, workmanship and equipment."

THE BRISTOL AEROPLANE CO., LTD.,
FILTON — BRISTOL.

Telegrams: Aviation Bristol.

Telephone: 3906 Bristol.

NEW AEROPLANES.

The Arado W.II.

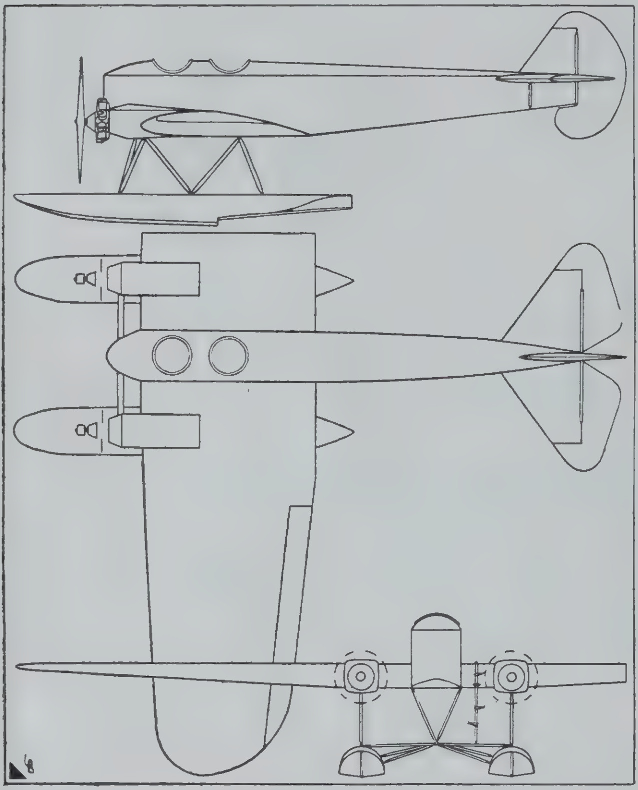
MADE BY ARADO-HANDELS G.M.B.H., Warnemünde. Two-seater civil monoplane.

WING.—Cantilever monoplane. Wing built into bottom of fuselage across which it is continuous. Wooden frame, ply-wood covered. Unbalanced ailerons.

FUSELAGE.—Rectangular section, welded steel tube construction.

TAIL UNIT.—Normal monoplane type, strut-braced above and below tail plane. Horn-balanced elevators and rudder. The latter has balance horns below fuselage as well as above fin.

UNDERCARRIAGE.—Two sets of vertical W struts below each wing engine run to double spreader bars between floats. These are additionally stayed to cabanes below fuselage. Floats of three-ply arc of single-step box-type.



POWER PLANT.—Two Siemens Halske S.H.12 9-cylinder, air-cooled radials of 110 h.p. in nacelles on wing over floats. Fuel tanks in wing behind engines.

ACCOMMODATION.—Two open cockpits in tandem over wing.

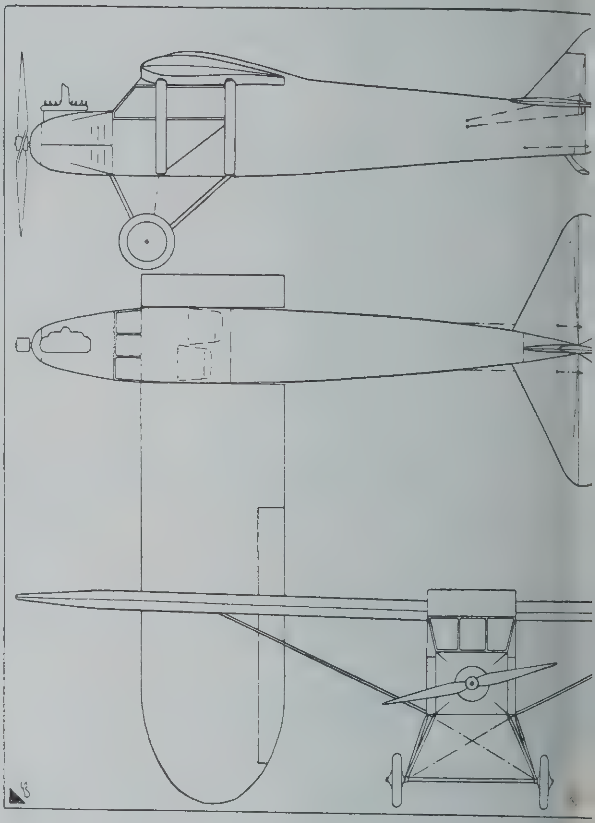
DIMENSIONS.—Span 17.4 m. (57 ft. 2 in.), Length 12.55 m. (41 ft. 3 in.), Height 3.2 m. (11 ft. 0 in.), Wing area 53.8 sq. m. (578 sq. ft.).

WEIGHTS AND LOADINGS.—Weight empty 1,600 kg. (3,520 lbs.), Fuel and oil 200 kg. (440 lbs.), Disposable load (including crew) 200 kg. (440 lbs.), Fully loaded 2,000 kg. (4,400 lbs.), Wing loading 37 kg./sq. m. (7.6 lbs./sq. ft.), Power loading 9.2 kg./h.p. (20.25 lbs./h.p.).

PERFORMANCE.—Maximum speed 145 km.h. (87 m.p.h.), Minimum speed 72 km.h. (44 m.p.h.), Climb to 2,000 m. (6,500 ft.) 35 mins.

The Comte AC.4.

MADE BY ALFRED COMTE, Horgen, Switzerland. Sporting two-seater cabin machine.



WINGS.—High-wing strut-braced monoplane. Uniform chord thickness except rounding at tips. Normal timber construc fabric-covered. Steel tube drag struts. Wing struts round tube, three-ply fairing. Long narrow chord, unbalanced, ailerons.

FUSELAGE.—Rectangular section forward, rectangle with triang fairings aft, of wing. Welded tube structure.

TAIL UNIT.—Normal monoplane type, welded tube structure. Ru horn-balanced.

UNDERCARRIAGE.—Cross-axle Vee type. Struts of streamline steel Rubber cord springing.

POWER PLANT.—One Cirrus Mk. II engine 75 h.p. driving Reed airscrew. One 140 litre (31 galls.) petrol tank under seat, on litre (62 galls.) tank in wing over cabin.

ACCOMMODATION.—Two slightly staggered seats below wing celluloid side and Triplex glass front windows. Single co normal, dual control optional.

DIMENSIONS.—Span 12.13 m. (39 ft. 10 in.), Length 8.05 m. (26 ft. 5 Height 2.90 m. (9 ft. 6 in.), Wing area 20 sq. m. (215 sq. ft.).

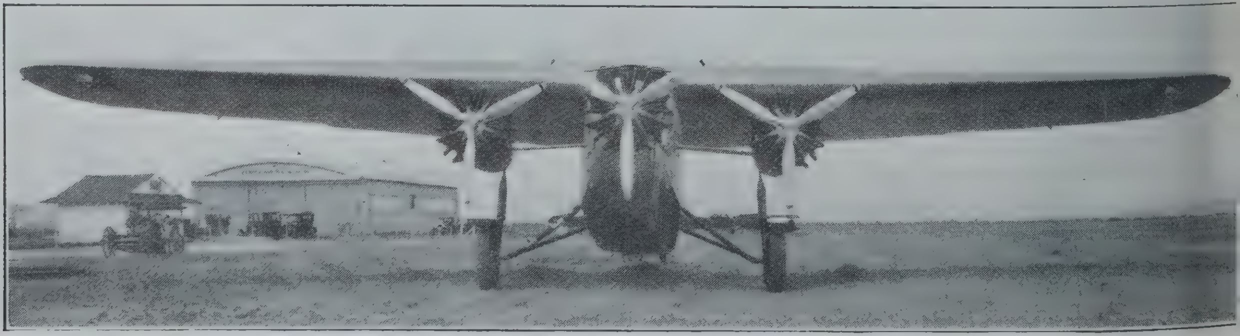
WEIGHTS AND LOADINGS.—Weight empty 500 kg. (1,100 lbs.), W normal full load 680 kg. (1,496 lbs.), Maximum permissible 956 kg. (2,090 lbs.), Wing loading (normal) 34 kg./sq. m. lbs./sq. ft.), Power loading (normal) 8.5 kg./h.p. (18.7 h.p.).

PERFORMANCE.—Maximum speed 160 km.h. (99 m.p.h.), Climb to 1,0 (3,280 ft.) 7 mins., Ceiling 4,400 m. (14,400 ft.).

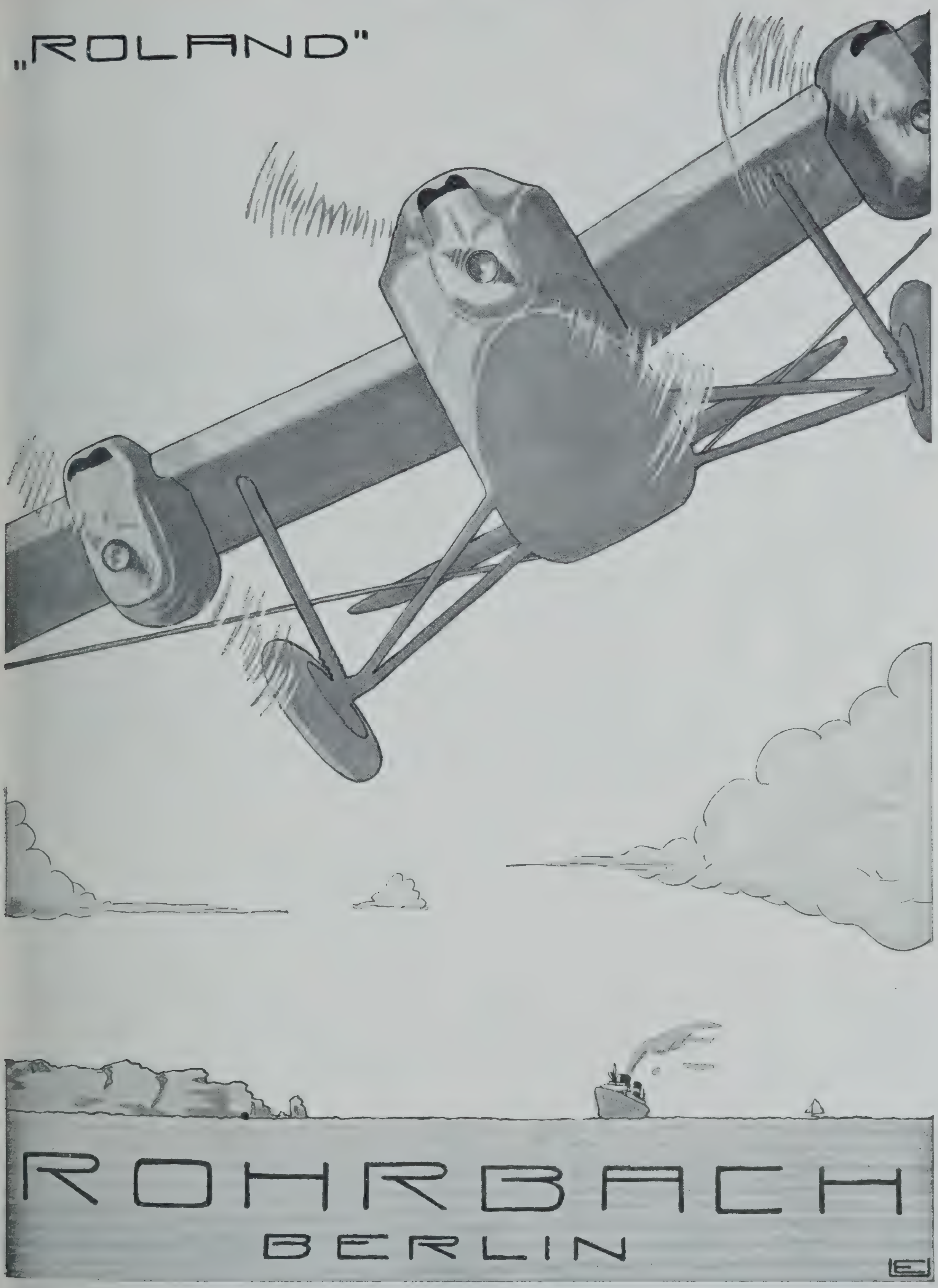
The Fokker F.10 "Super Trimotor."

MADE BY THE ATLANTIC AIRCRAFT CORPORATION, Hasbrouck Heights, Jersey.

TYPE.—A twelve-passenger commercial cabin monoplane.



Front view of the Fokker F.10 (three 425 h.p. Pratt and Whitney Wasp engines).



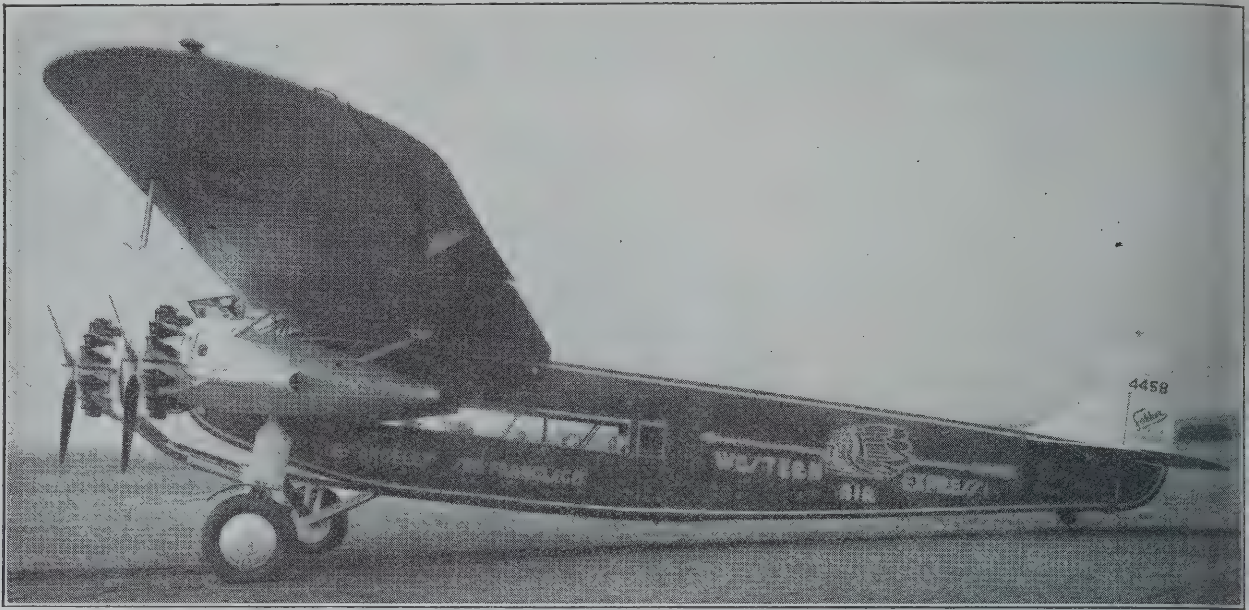
IF . . . .

If one engine fails, what——?
Most aeroplanes equipped with two engines, or three, would be compelled to make a forced landing in this case.
Forced landing, that means: late arrival, perhaps danger to passengers, pilot and craft.

There is only one three-engined all-metal aeroplane in the world which maintains straight level flight (under full load) with only two engines running:

THE "ROHRBACH ROLAND."

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.



Side view of the Fokker F.10 (three 425 h.p. Pratt and Whitney Wasp engines).

Wing.—Full cantilever high-wing monoplane. Laminated tapered spruce and birch three-ply box spars, plywood ribs and plywood covering.

Fuselage.—Welded steel tube structure. Warren truss construction to rear of baggage compartment then wire cross-braced to tail. Fabric-covered.

Tail Unit.—Normal design welded steel tube framework, fabric-covered. Balanced elevators and rudder. Adjustable tail-plane.

Undercarriage.—Divided type with axles and radius rods hinged to the bottom longerons of the fuselage. Two vertical struts fitted with shock-absorbers between axles and side-engine nacelles. Shock-absorbers consisting of easily-replaceable rubber cord rings. Sauzedde wheel-brakes fitted as standard.

Power Plant.—Three 425 h.p. Pratt and Whitney Wasp radial air-cooled engines, one fitted to the nose, and the two wing engines suspended under the wing on ring-type mounts. Three Eclipse hand-inertia engine starters and Standard Steel three-bladed metal airscrews.

Accommodation.—Pilot's cockpit with side-by-side seats in leading edge of the wing. Entirely enclosed with non-splinterable glass windows and quick-opening transparent roof. Communicating with, but partitioned off from, cabin with door between. Baggage or wireless compartment below pilot's seat. Cabin with comfortable accommodation for twelve passengers under wing. Three additional mail or baggage compartments and lavatory. Windows throughout entire length of cabin.

Dimensions.—Span 71 ft. 2 in. (21.7 m.), Maximum chord 12 ft. 6 in. (3.81 m.), Length 50 ft. 8 in. (15.45 m.), Height 12 ft. 5 in. (3.80 m.), Wing area 728 sq. ft. (68 sq. m.).

Weights and Loadings.—Weight empty 6,550 lbs. (2,977 kg.), Weight of fuel and oil 1,950 lbs. (887 kg.), Pay load 2,640 lbs. (1,200 kg.), Weight loaded 11,500 lbs. (5,227 kg.), Wing loading 15.8 lbs./sq. ft. (76.8 kg./sq.m.), Power loading 9.05 lbs./h.p. (4.1 kg./h.p.).

Performance.—Maximum speed 140 m.p.h. (225 km.h.), Cruising speed 120 m.p.h. (193 km.h.), Landing speed 55 m.p.h. (84 km.h.), Climb at sea level 1,420 ft./min. (423 m./min.), Climb to 10,000 ft. (3,050 m.) 10 mins., Service ceiling 18,000 ft. (5,500 m.).

Note.—This machine is in the service of Western Air Express Inc. on the San Francisco—Los Angeles route.

The Fokker "Super Universal,"

Made by The Atlantic Aircraft Corporation, Hasbrouck Heights, N Jersey.

Type.—Civil passenger-carrier.

Wings.—Cantilever monoplane, in one piece. Tapered chord section. Laminated spruce and three-ply box spars, three covering. Unbalanced ailerons.

Fuselage.—Welded mild-steel tube construction. Warren truss b ing to rear of luggage compartment, wire braced behind. Fal covered.

Undercarriage.—Split-axle type. Half axles hinged to lower edges fuselage, and braced against thrust by a strut running to hin behind but in line with axle hinges. A vertical telescopic runs up from each axle end to front wing spar. Fokker multi ring rubber cord shock-absorbers.

Tail Unit.—Normal monoplane type, with horn-balanced rudder elevators and adjustable tail-plane. Welded steel tube fra work.

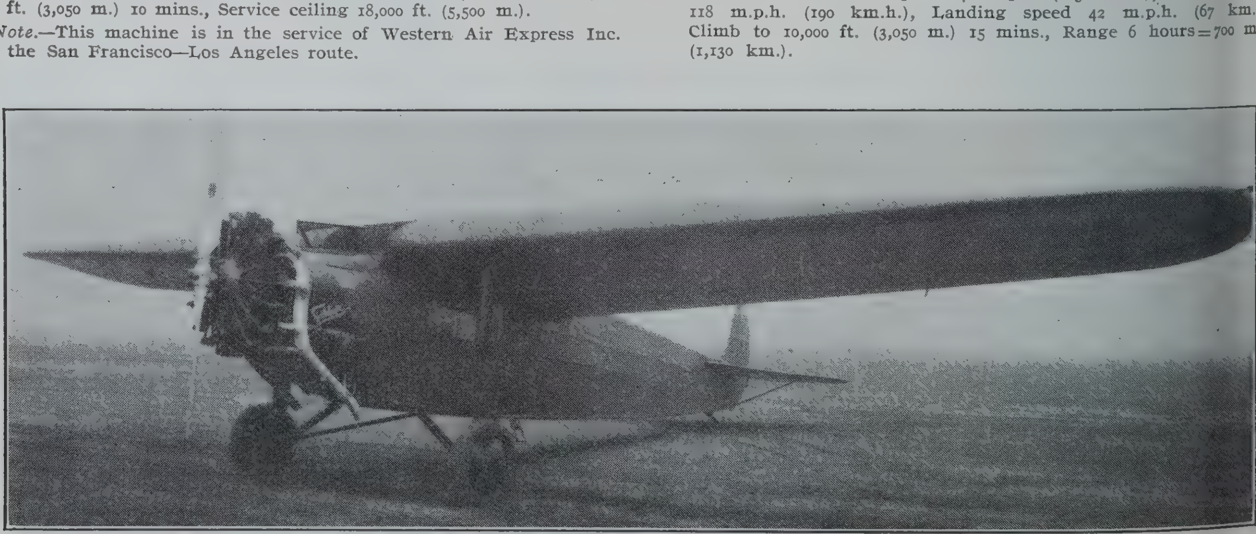
Power Plant.—One Pratt and Whitney Wasp air-cooled radial 410 h.p. fitted with "Eclipse" inertia starter, driving Stand Steel Corp. metal airscrew. Two tanks (126 U.S. = 110 Imp. lons = 485 litres total capacity) in wing. Engine fuel pumps emergency hand pump.

Accommodation.—Side-by-side seats with dual control in enclo cockpit ahead of and below leading edge of wing. Cockpit titioned off from cabin, which contains seats for five or six sengers. Cabin dimensions 9 ft. (2.84 m.) × 3 ft. 5 in. (1.03 m. 5 ft. (1.52 m.) high. Luggage compartment 3 ft. 4 in. (1.03 m. 2 ft. 7 in. (0.79 m.) × 4 ft. 5 in. (1.34 m.) behind cabin.

Dimensions.—Span 50 ft. 7 in. (15.4 m.), Length 36 ft. 7 in. (11.15 Height 8 ft. 11 in. (2.71 m.), Wing area 370 sq. ft. (34.2 m.).

Weights and Loadings.—Weight empty 2,800 lbs. (1,272 kg.), F 750 lbs. (341 kg.), Oil 90 lbs. (41 kg.), Pilot 180 lbs. (82 k Pay load 1,200 lbs. (545 kg.), Loaded weight 5,000 lbs. (2,275 k Wing loading 13.5 lbs./sq. ft. (66.5 kg./sq. m.), Power load 12.2 lbs./h.p. (5.55 kg./h.p.).

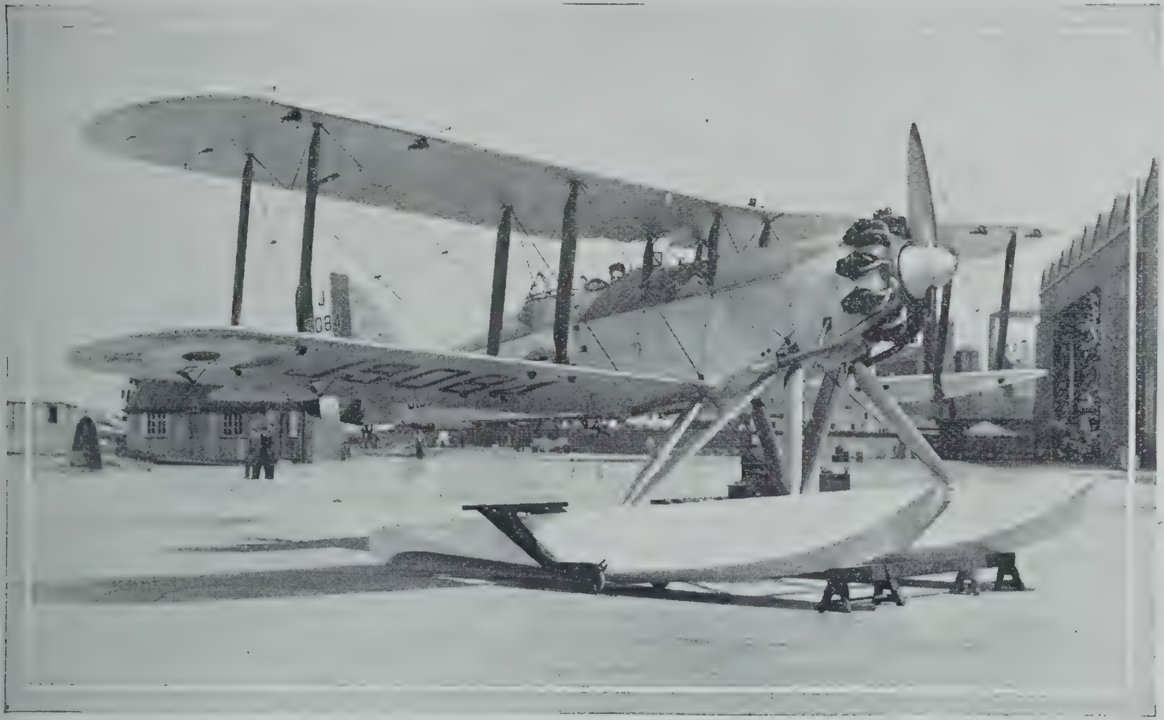
Performance.—Maximum speed 140 m.p.h. (225 km.h.), Cruising sp 118 m.p.h. (190 km.h.), Landing speed 42 m.p.h. (67 km. Climb to 10,000 ft. (3,050 m.) 15 mins., Range 6 hours = 700 m (1,130 km.).



The Fokker "Super Universal" (425 h.p. Pratt and Whitney Wasp engine).

The

WAPITI SEAPLANE



"LANDPLANE AND SEAPLANE TOO: The Photograph shows the Westland Wapiti, Bristol "Jupiter VI" Engine, fitted with floats. The two types of undercarriage are interchangeable. The machine has recently passed its tests as a seaplane at Felixstowe, and is reported to handle very well indeed."

——"*Flight*," *Aug. 9th.*

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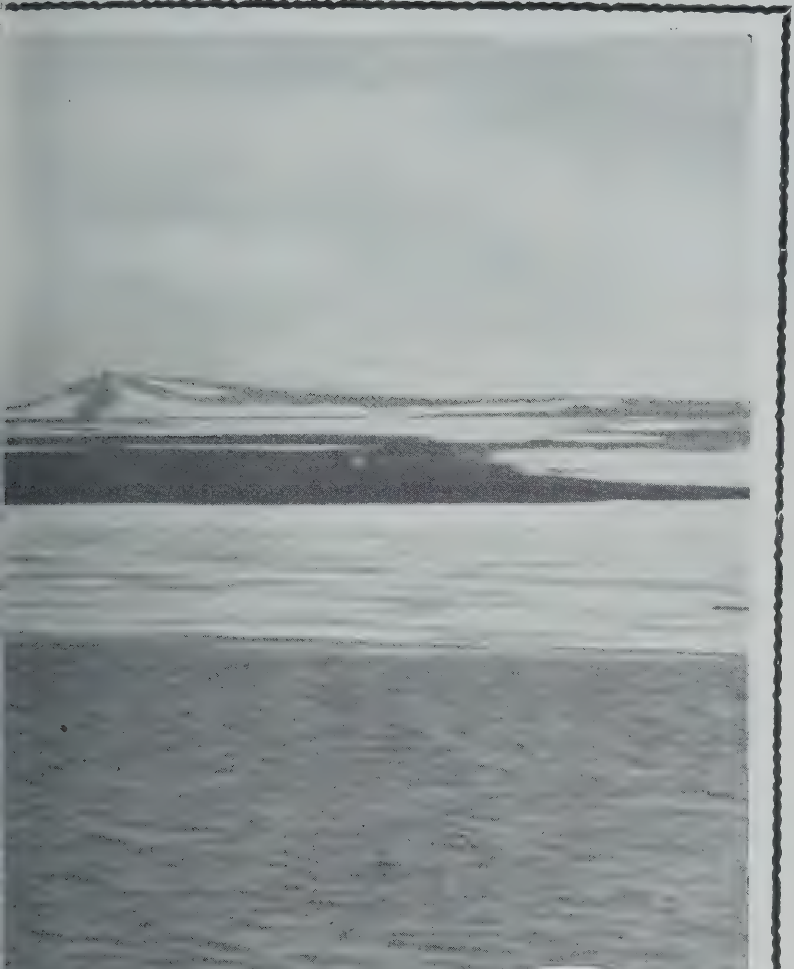
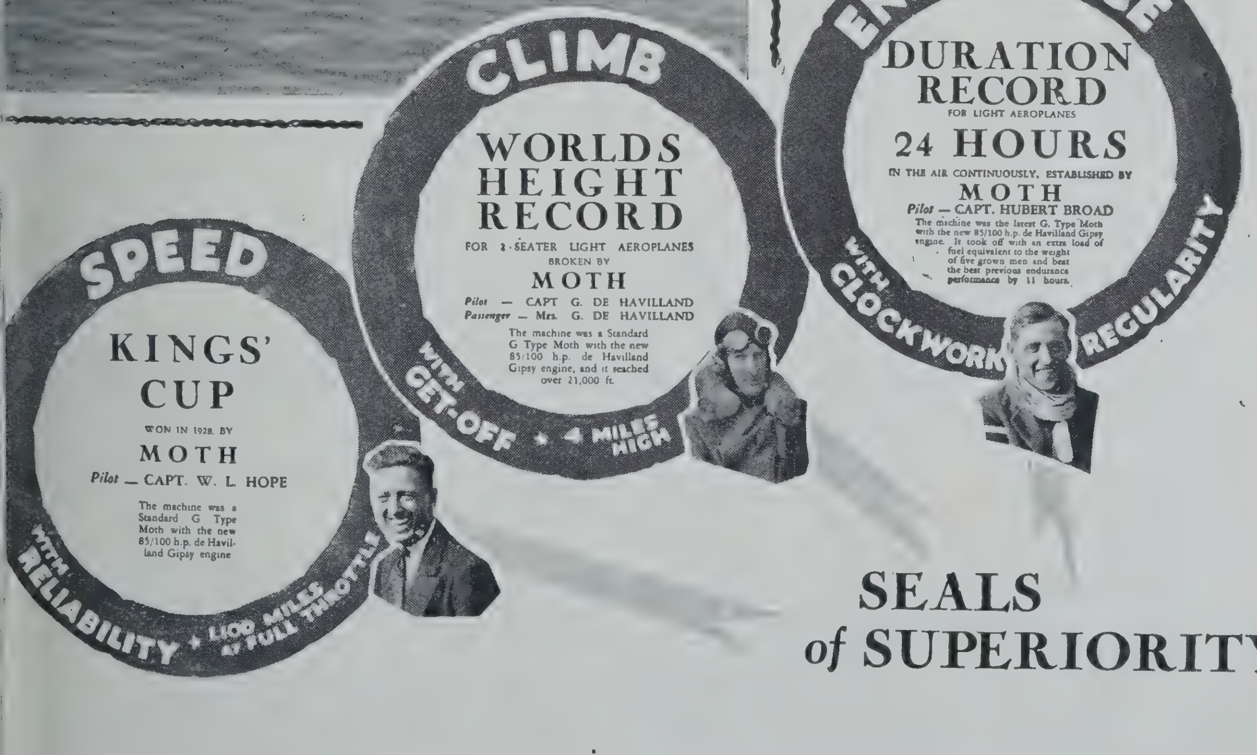


DH MOTH

STAMPED with the seal of superiority in speed, climb, and endurance, the Moth is chosen for all occasions demanding unfailing reliability. The illustration shows the Moth drawn up on the ice in the Straits of Hinlopen before its successful dash on July 6th, to the rescue of Captain Lundborg from the encampment where he had been marooned. The pilot was Lieut. Schyberg. This machine was equipped with skis and supplied to the Swedish "Italia" rescue expedition by Mem. Aero Materiel A.—B., of Stockholm, agents for the de Havilland Aircraft Co.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Pilot — CAPT. W. L. HOPE

The machine was a Standard G Type Moth with the new 85/100 h.p. de Havilland Gipsy engine

WORLDS HEIGHT RECORD

FOR 2-SEATER LIGHT AEROPLANES

BROKEN BY

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Pilot — CAPT G. DE HAVILLAND
Passenger — Mrs. G. DE HAVILLAND

The machine was a Standard G Type Moth with the new 85/100 h.p. de Havilland Gipsy engine, and it reached over 21,000 ft.

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FOR LIGHT AEROPLANES

24 HOURS

IN THE AIR CONTINUOUSLY, ESTABLISHED BY

MOTH

Pilot — CAPT. HUBERT BROAD

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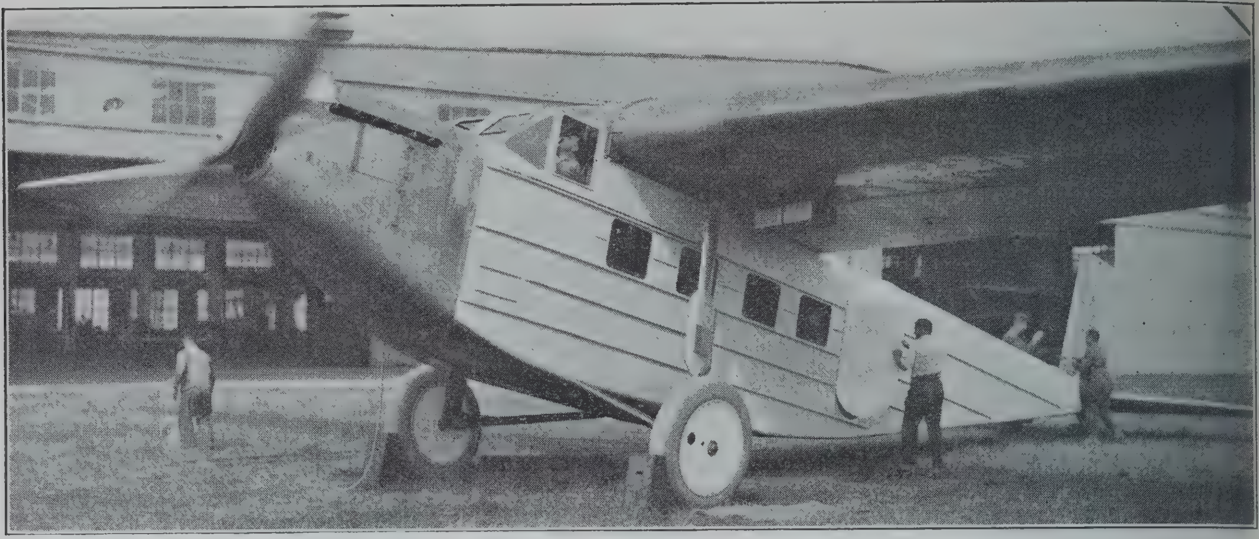


The B.F.W. M-20 cabin monoplane (500 h.p. B.M.W.VI engine).

The B.F.W. M20.

Made by The Bayerische Flugzeugwerke A.G., Augsburg.

Type.—Commercial passenger carrier.

Wings.—One piece cantilever monoplane, of very high aspect ratio with tapering chord and section. Built on one main spar of duralumin with duralumin ribs. From spar to leading edge wing covered in sheet duralumin. Behind spar fabric covering. Small narrow chord ailerons (unbalanced) inset from wing tips.

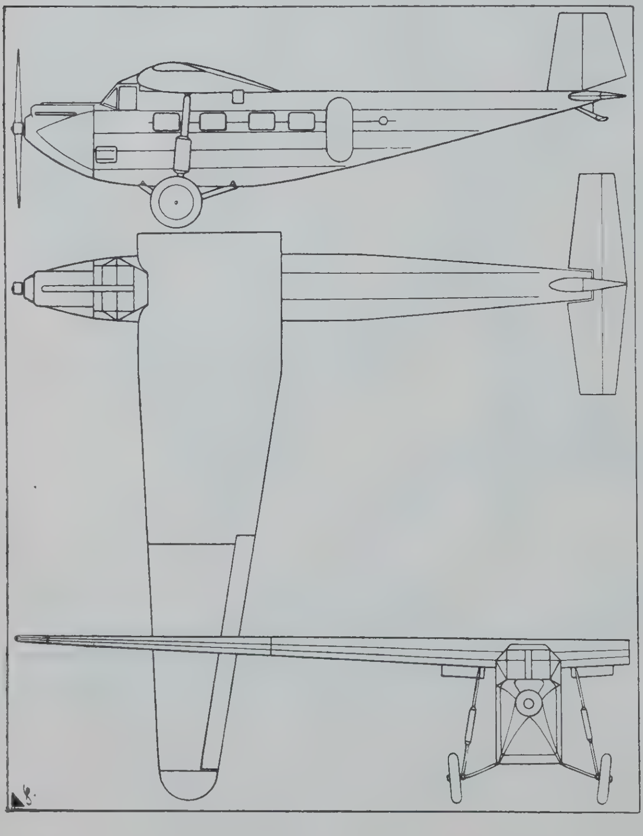
Fuselage.—Rectangular section. Built on rectangular duralumin formers, with four tubular duralumin longerons, duralumin covered.

Tail Unit.—Normal monoplane type, with no external bracing. Tail plane and fin built on one main spar (duralumin) with duralumin covered leading edge. Unbalanced control surfaces.

Undercarriage.—Split-axle type. Half axles and thrust tubes hinged to lower edges of fuselage, nearly vertical telescopic leg running up to wing spar.

Power Plant.—One B.M.W.VI engine, 500 h.p. (normal), on removable steel tube mount. Radiators on under surface of wing, one on each side. Three fuel tanks (760 litres = 167 galls. total capacity) in wing with a small reserve tank in fuselage. Oil tank (60 litres = 13 galls.) in fuselage behind fireproof bulkhead.

Accommodation.—Side-by-side seats with dual control totally enclosed below leading edge of wing. One luggage compartment below pilot's seat, another below engine. Cabin, separated from pilot's seat by door, has eight separate seats and one settee for two. A folding table fitted in front of each seat. Lavatory and luggage compartment behind cabin. Openable "Triplex" windows to each seat.



Dimensions.—Span 25.5 m (83 ft. 8 in.), Length 14.9 m. (48 ft. 10 in. Height 3.95 m. (12 ft. 11 in.), Wing area 65 sq. m. (700 sq. ft.).

Weights and Loadings.—Weight empty 1,790 kg. (3,940 lbs.), Weigh loaded 4,000 kg. (8,800 lbs.), Wing loading 61 kg./sq. m. (12.6 lbs. sq. ft.), Power loading 8 kg./h.p. (17.6 lbs./h.p.).

Performance.—Maximum speed 175 km.h. (109 m.p.h.), Minimum spee 75 km.h. (47 m.p.h.), Climb to 1,000 m. (3,280 ft.) 8 min., Ceilin 5,700 m. (18,700 ft.), Range 880 km. (550 m.).

The Raab-Katzenstein 2B "Pelikan."

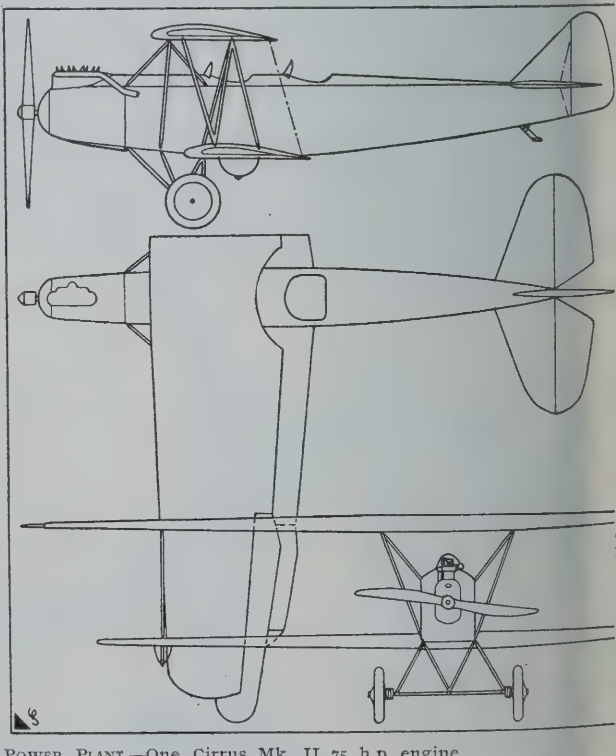
Made by the Raab-Katzenstein-Werke G.m.b.H., Cassel. Two-seate sport or school machine.

Wings.—Cantilever biplane. Top wing greater in span than lowe Both wings taper in chord to tips. One pair of N type interplan struts per side. Ailerons horn-balanced on top wing, inset fro tip on bottom. Wings timber-framed and three-ply covered.

Fuselage.—Rectangular section, welded steel tube construction.

Undercarriage.—Cross-axle, Vee type, with a third central strut b tween Vees. Axles hinged on centre line to cabane below fus lage. Rubber cord springing.

Tail Unit.—Normal monoplane type. Steel tube frame. No contr surfaces balanced.



Power Plant.—One Cirrus Mk. II 75 h.p. engine

Accommodation.—Two open cockpits in tandem, one below and o behind top wing. Dual controls.

Dimensions.—Span (top) 10.9 m. (35 ft. 10 in.), (bottom) 9.24 (30 ft. 2 in.), Length 7.89 m. (25 ft. 2 in.), Height 2.7 (8 ft. 10 in.), Wing area 26.8 sq. m. (300 sq. ft.).

Weights and Loadings.—Weight empty 560 kg. (1,232 lbs.), Ful loaded 840 kg. (1,848 lbs.), Wing loading 31.5 kg./sq. m. (6 lbs./sq. ft.), Power loading 11.4 kg./h.p. (25 lbs./h.p.).

Performance.—Maximum speed 130 km.h. (80 m.p.h.), Minimu speed 65 km.h. (40 m.p.h.), Climb to 1,000 m. (3,280 ft.) 14 min Range 6 hours.

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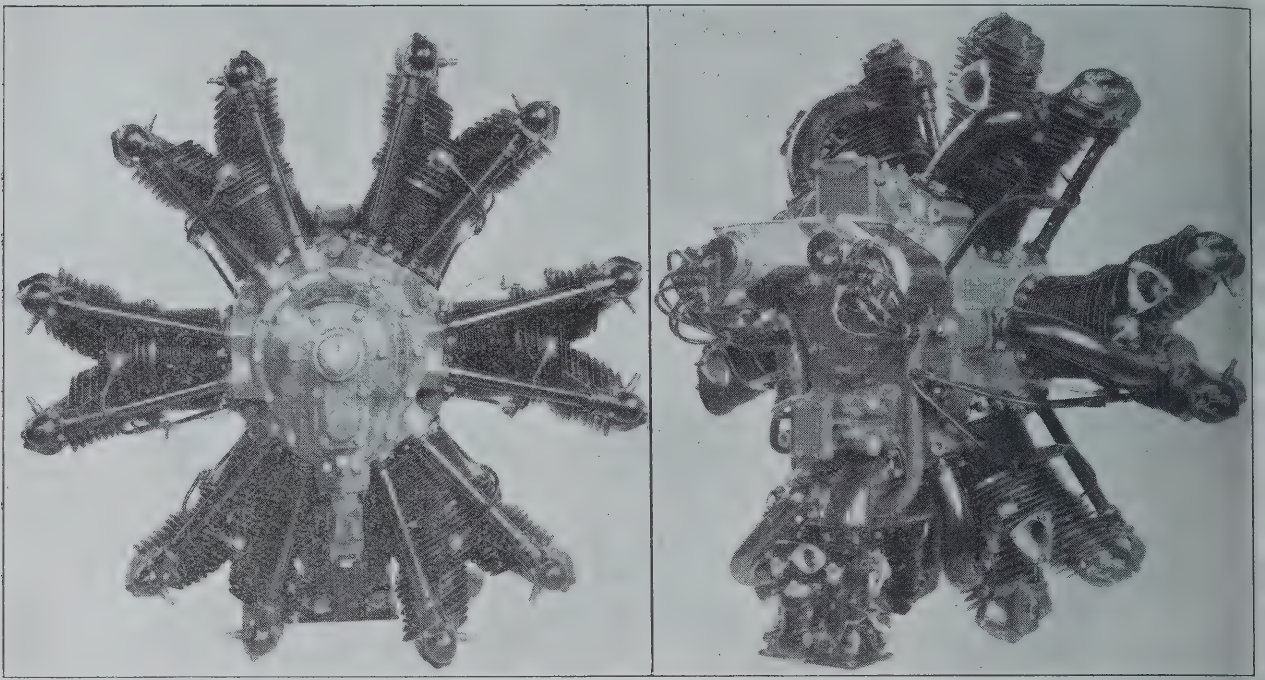


The 180 h.p. Curtiss Challenger engine.

The Curtiss Challenger (R,600).

Made by The Curtiss Aeroplane and Motor Co. Inc., Garden City, Long Island, N.Y.

Type.—Six-cylinder air-cooled radial.

Cylinders.—5⅛ in. (130 m/m.) bore by 4⅞ in. (123 m/m.) stroke. Open ended steel barrels screwed into aluminium alloy heads. Two inserted bronze valve seats in each head.

Pistons.—No data.

Valve Gear.—Push-rod and overhead rocker gear, totally enclosed. Cam ring in front of engine, spur gear driven.

Connecting Rods.—No data available

Crankshaft.—Two-throw 180° single piece type, counter-balanced.

Crankcase.—Hexagonal prism, split in plane of front crank throw. Front cover contains cam gear. Rear cover contains a two section induction chamber and houses auxiliary gear drives.

Carburation.—A duplex carburettor feeds the two sections of the induction chamber, each in turn feeding three cylinders.

Lubrication.—Normal dry sump system.

Dimensions.—Over all diameter 42⅝ in. (1.07 m.).

Weight.—420 lbs. (191 kg.).

Performance.—Normal output 180 h.p. at 1,800 r.p.m. Fuel consumption 0.55 lb. (.25 kg.) per h.p. hour. Oil consumption 0.02 lb. (0.01 kg.) per h.p. hour.

The Curtiss "Chieftain" (H1640).

Made by The Curtiss Aeroplane and Motor Co. Inc., Garden Cit Long Island, N.Y.

Type.—Twelve-cylinder air-cooled radial. Two banks of six cylinde in lines of two, one behind the other.

Cylinders.—5⅝ in. (143 m/m.) bore, 5½ in. (140 m/m.) stroke. Op ended steel barrels with integral fins screwed into aluminium all heads. The two separate heads of each pair of cylinders are lock together by a valve gear casing. Four bronze valve seats press into each head.

Pistons.—No data available.

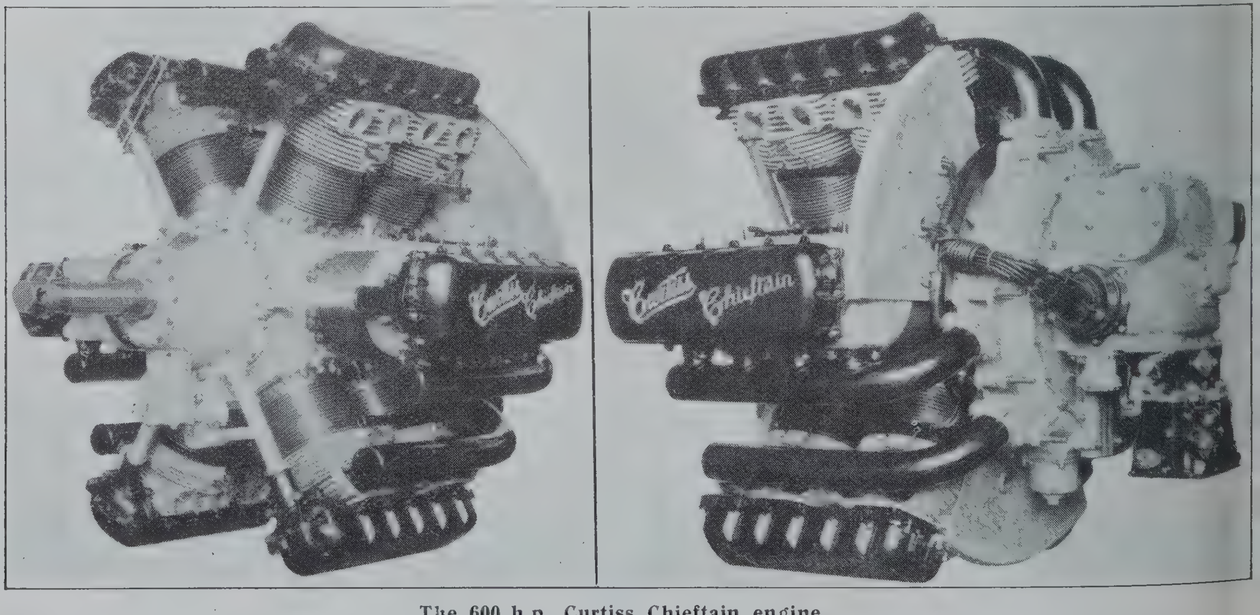
Valve Gear.—Two overhead camshafts over each row of two cylinde are contained in the valve gear casing and are driven by radi shafts in front of each pair of cylinders.

Connecting Rods.—Master rods have split white-metal lined big-en

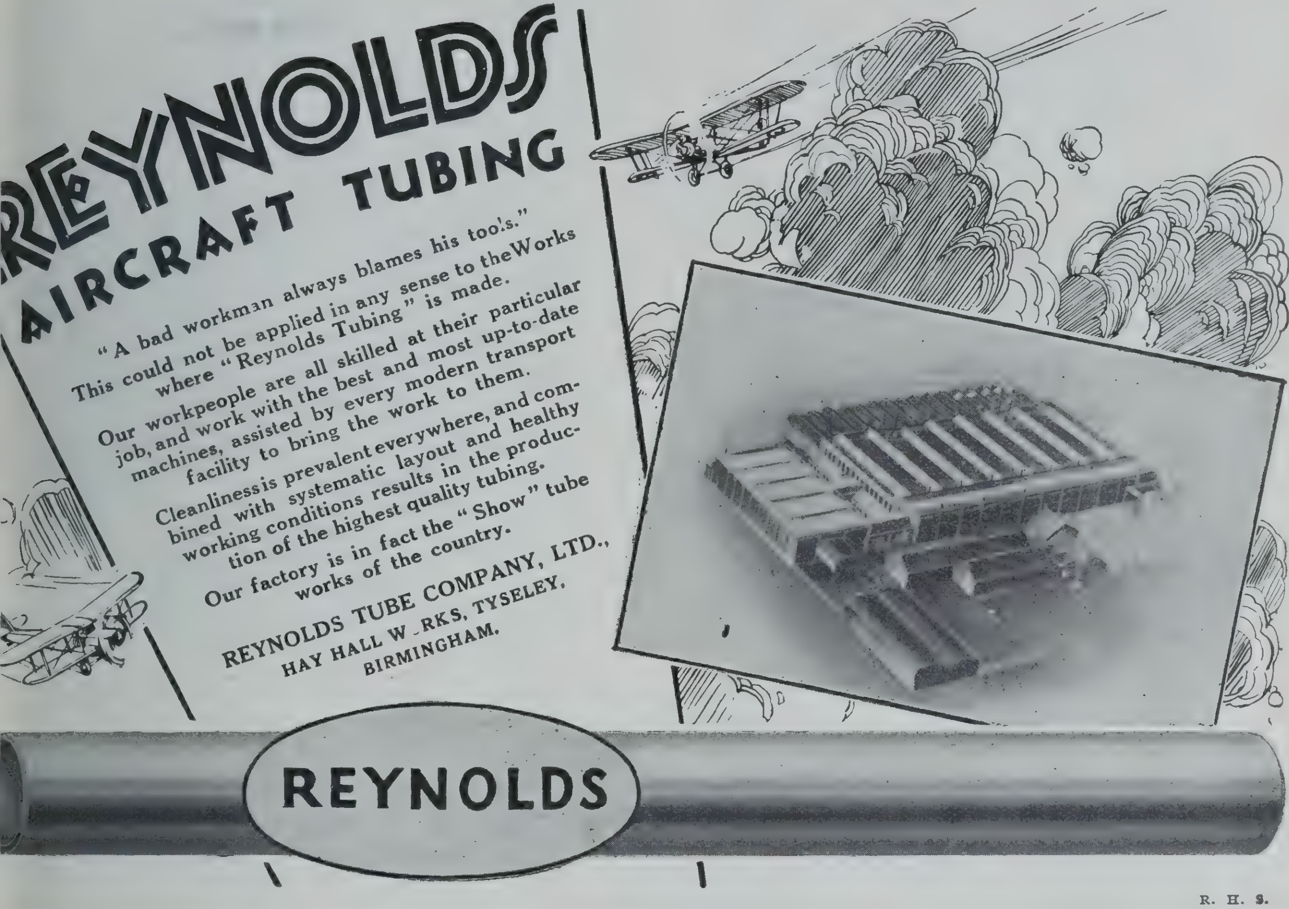
Crankshaft.—Two throw type, counter-balanced, running on t roller bearings at ends, and on a central white-metal steel-back journal. A deep-groove ball race takes thrust.

Crankcase.—Hexagonal prism, split between cylinder rows. Nose-pie carries thrust race and bevel gears for valve gear drives. A re casing contains annular induction fan space, and the rear cov of this carries drives and mountings for accessories.

Carburation.—One Stromberg NA-U8J carburettor supplies mixtu



The 600 h.p. Curtiss Chieftain engine.



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to the induction chamber at rear of engine, containing a distributor fan driven from the crankshaft. Three pairs of induction pipes lead to inlet valves, which are grouped to face alternate ways in cylinder heads.

Cooling System.—Three alternate Vee spaces between cylinders are blanked off in front. Air is thus forced into these Vees and out between cylinders to the blanked spaces. The Vees open to air contain exhaust valves and manifolds.

Lubrication.—Normal dry sump system with forced feed through crankshaft to all main bearings and through cam drive shafts to camshafts. Two scavenger pumps (front and rear).

Ignition.—One Splitdorf double magneto fires two plugs in each cylinder.

Firing Order.—To secure equal firing intervals a combination of firing alternate cylinders in the two rows and adjacent cylinders in the same row is necessary.

Dimensions.—Over-all diameter 45 inches (1.14 m.).

Weight.—900 lbs. (410 kg.).

Performance.—Normal output 615 h.p. at 2,200 r.p.m. Fuel consumption cruising at 2,000 r.p.m. 0.53 lb. (0.24 kg.) per h.p. hour. Oil consumption 0.02 lb. (0.01 kg.) per h.p. hour.

The Menasco Salmson Engine.

Made by Menasco Motors Co., Los Angeles, California.

Type.—Nine-cylinder air-cooled radial.

Cylinders.—Bore 125 m/m. (4.92 in.), Stroke 170 m/m. (6.69 in.). Plain steel sleeves (open ended), screwed into an aluminium barrel and head which carries cooling fins. Two inclined bronze valve seats in head. Lower end of cylinder sleeves have double flanges forming a recess into which the two halves of the crankcase fit.

Pistons.—Concave heads with four rings above and one ring below gudgeon pin.

Connecting Rods.—One-piece big end on master rod running on roller bearings. Master rod H section, auxiliary rods tubular.

Crankshaft.—Single-throw split type, counterbalanced. Runs on two ball bearings at front end and one roller bearing at rear.

Crankcase.—Barrel casting, split in plane of cylinders. Rear section contains annular induction chamber and drives for magnetos and oil pumps. Front cover encloses valve gear.

Valve Gear.—One single-track six-lobed cam disk runs on ball bearings on crankshaft and is driven by spur gears through a lay-shaft. Roller type tappet-rods, enclosed push-rods and enclosed overhead rockers operate the valves.

Carburation.—One Zenith carburettor supplies gas to the annular induction chamber and nine induction pipes distribute the mixture to inlet valves.

Ignition.—Two Salmson magnetos mounted on rear cover of crankcase supply the plugs side-by-side in front of each cylinder.

Lubrication.—A worm-driven double-plunger pump at rear of engine acts as scavenger and pressure-feed pump.

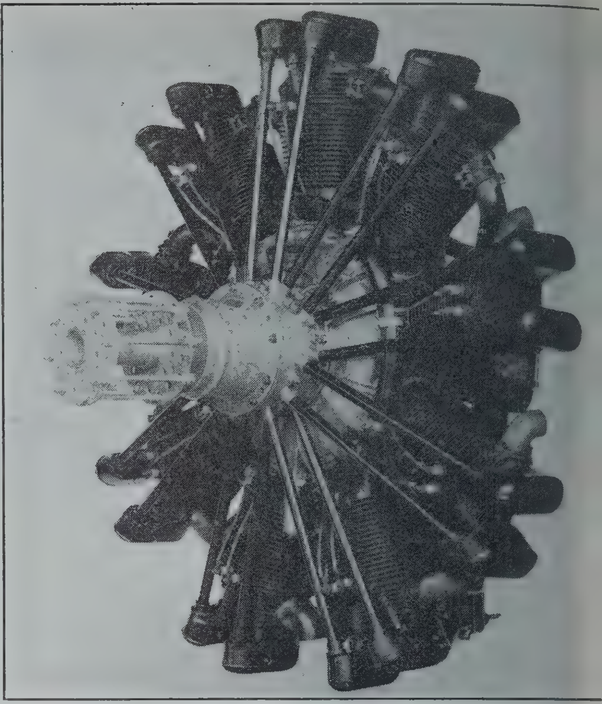
Dimensions.—Overall diameter 49⅛ in. (1.25 m.), Overall length 38½ in. (0.978 m.), Pitch diameter of mounting bolts 18¾ in. (0.477 m.).

Weight.—540 lbs. (246 kg.).

Performance.—Normal output 250 h.p. at 1,500 r.p.m., Maximum output 290 h.p. at 1,750 r.p.m., Fuel consumption at 250 b.h.p. 12 U.S. = 10 Imp. gallons (44 litres) per hour. Oil consumption 1 (U.S.) quart per hour.

Price.—$3,250 (£665) f.o.b. Los Angeles.

Note.—This engine is in part a reconstruction of the U.S. Government's war surplus stock of Z.9 Salmson engines. Cylinders and valve gear are entirely new and many details have been altered. It is claimed that the reliability and economy of the engine have been vastly improved.



The 250 h.p. Menasco Salmson engine.

The Wright Whirlwind, J-6 Series.

Made by The Wright Aeronautical Corporation, Paterson, Ne Jersey, U.S.A.

Type.—Static air-cooled radials. Made in three sizes with five (Mod R.540), seven (Model R.760), and nine (Model R.975) cylinde respectively.

Cylinders.—5 in. (127 m/m.) bore, 5½ in. (140 m/m.) stroke. Ste barrels with integral fins screwed into aluminium alloy heads. Tv inclined valves per cylinder. Exhaust ports face forwards.

Pistons.—Aluminium alloy castings, very short, with concave heads

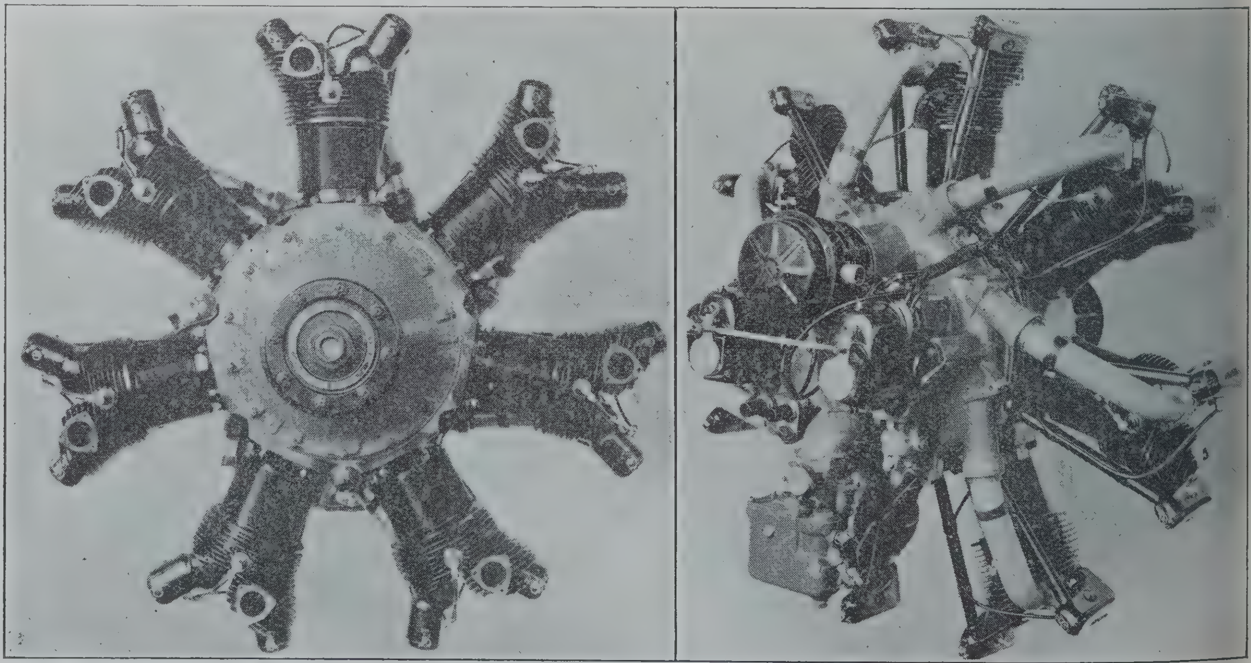
Connecting Rods.—Master rod with solid big-end and white-met bearing. Master and auxiliary rods of H section. Gudgeon a wrist pin bushes of aluminium bronze.

Crankshaft.—Counter-balanced, single-throw type, in two sections permit use of solid big-end. Runs in plain bronze journal bearing

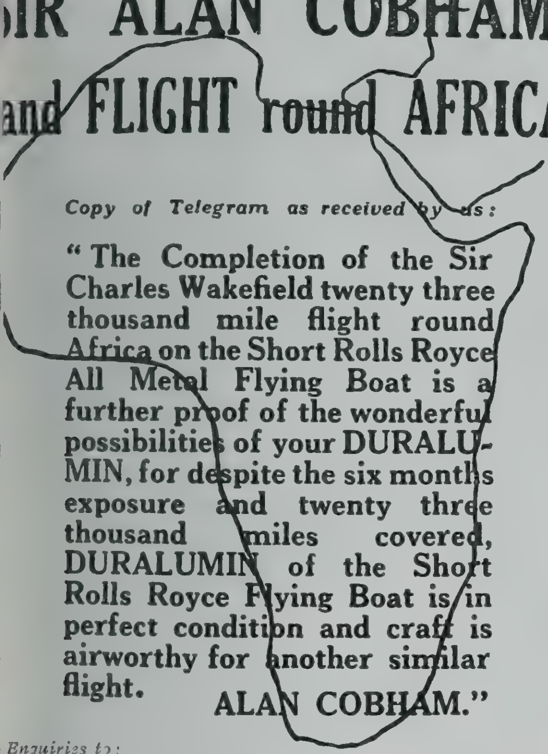
Crankcase.—Cylindrical body with mounting bosses for cylinder Front cover carries only front crankshaft journal and thrust bea ings. Rear cover incorporates an induction chamber as well accommodation for all accessory gears.

Valve Gear.—Carried in the rear of the main crankcase body. A ca ring runs on a steel sleeve, concentric with crankshaft, carried the rear wall of crankcase, and is spur gear driven through a la shaft. Roller tappets, totally enclosed push-rods, and enclose overhead rockers operate the valves.

Induction System.—A Stromberg carburettor, carried well belo engine centre line supplies gas to the induction chamber. this is a centrifugal fan, and radial induction pipes convey mixtu



The 140 h.p. Wright Whirlwind J-6 five-cylinder engine.



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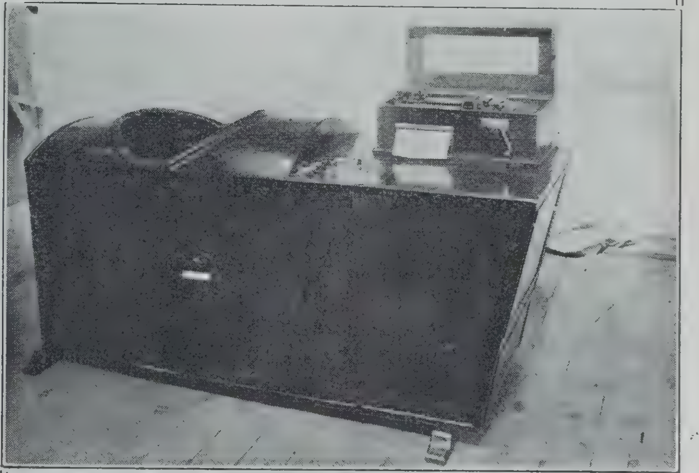

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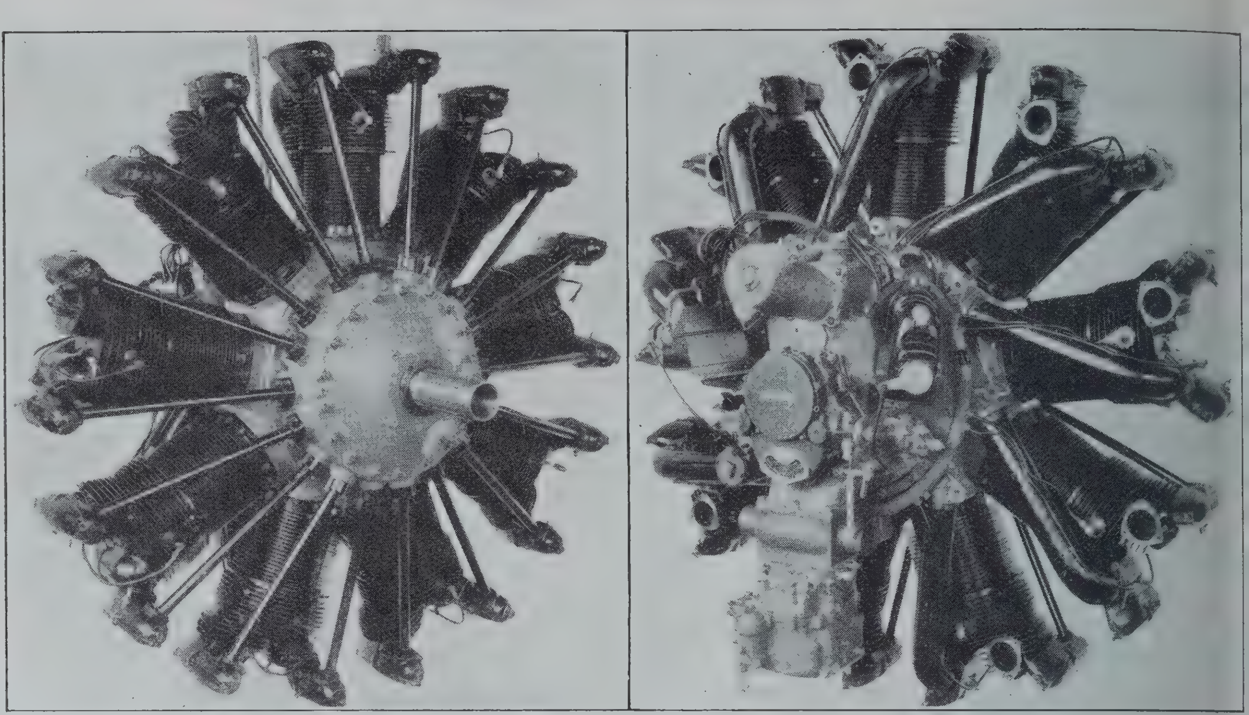


The 300 h.p. Wright Whirlwind nine-cyinder engine.

to the inlet valves. A General Electric Co.'s supercharger geared 7 to 1 from crankshaft may be used in place of the normal fan.

Lubrication.—Normal dry sump system.

Ignition.—Two Scintilla magnetos mounted one on each side of rear cover with axes parallel to crankshaft.

Accessories.—Mountings and drives are provided at rear of engine for petrol pump, starter, two gun synchronisers, two rev.-counter drives and dynamo drive.

Performance and Weights.—R.540 (5 cylinders) 140 h.p. at 1,800 r.p.m for 370 lb. (168 kg.). R.760 (7 cylinders) 225 h.p. at 1,900 r.p.m. for 425 lb. (196 kg.). R.975 (9 cylinders) 300 h.p. at 1,900 r.p.m. for 490 lb. (222 kg.). Fuel consumption (all models) at rated power and speed 0.55 lb. (0.25 kg.) per h.p. hour. Oil consumption 0.03 lb. (0.014 kg.) per h.p. hour.

The Wright Cyclone (R.1750) Engine.

Made by The Wright Aeronautical Corporation, Paterson, New Jersey.

Type.—Nine-cylinder air-cooled radial.

Cylinders.—6 in. (153 m/m.) bore, 6½ in. (165 m/m.) stroke, 5.1 compression ratio. Steel barrels with integral fins screwed into aluminium alloy heads. Two valve seats of aluminium bronze inserted in head with 70° included angle between. Valve guides of tungsten steel shrunk into heads. Exhaust valves salt-filled.

Pistons.—Aluminium alloy, two rings above and one below gudgeon-pin.

Connecting Rods.—Master rod and solid big-end machined from one forging. A steel sleeve, white-metal lined, is pressed and pinned into big-end to form a bearing. Master and auxiliary rods I section. Gudgeon-pins float in little-ends and in pistons.

Crankshaft.—Single throw split type to permit use of solid big-e Runs in one plain journal (front), one roller bearing (rear) one ball thrust in nose of crankcase.

Crankcase.—Barrel type, heat-treated aluminium alloy casting. Inc porates a cam gear casing in front and an annular induct chamber at the rear. Front cover supports ball thrust race. R cover carries auxiliary gears and mountings.

Valve Gear.—A two-row four-lobed cam disc runs concentric w crankshaft, at one-eighth crankshaft speed in front compa ment of crankcase. Valves are operated through roller tapp enclosed push rods, and enclosed overhead rocker gear.

Induction System.—One Stromberg NA-Y7A carburettor feeds the duction chamber, which contains a centrifugal fan. This fan r be a General Electric Co.'s supercharger impellor geared to run eight times crankshaft speed. The induction passages are jacketted.

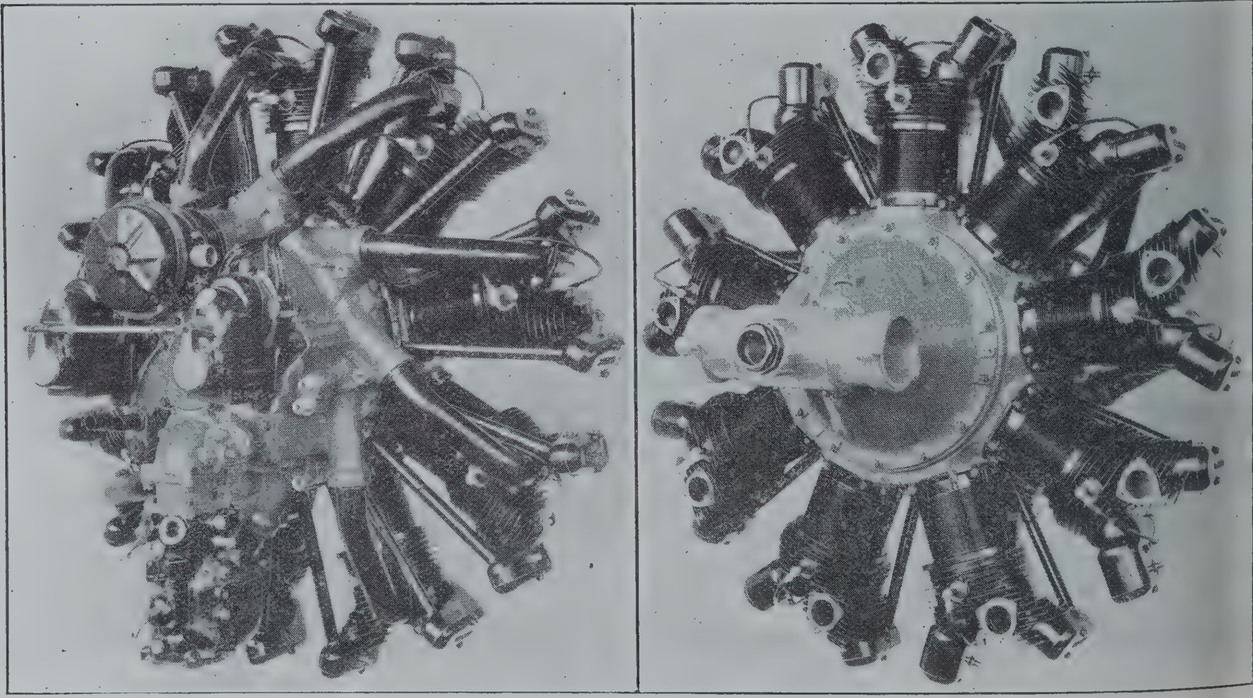
Lubrication.—Normal dry sump system. A quadruplex oil pump with three scavenger and one pressure unit (gear type) is used.

Ignition.—Two Scintilla AG-9D magnetos with skewed axes mounted on rear crankcase cover and supply front and rear pl in each cylinder.

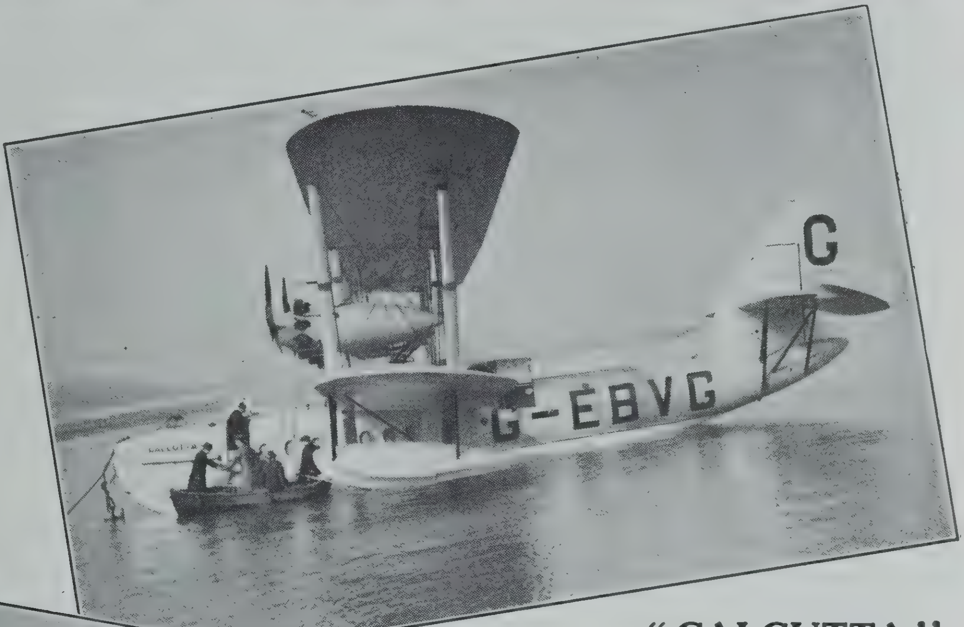
Accessories.—Drives and mountings provided on rear crankcase co for fuel pump, gun synchronisers, starter and dynamo.

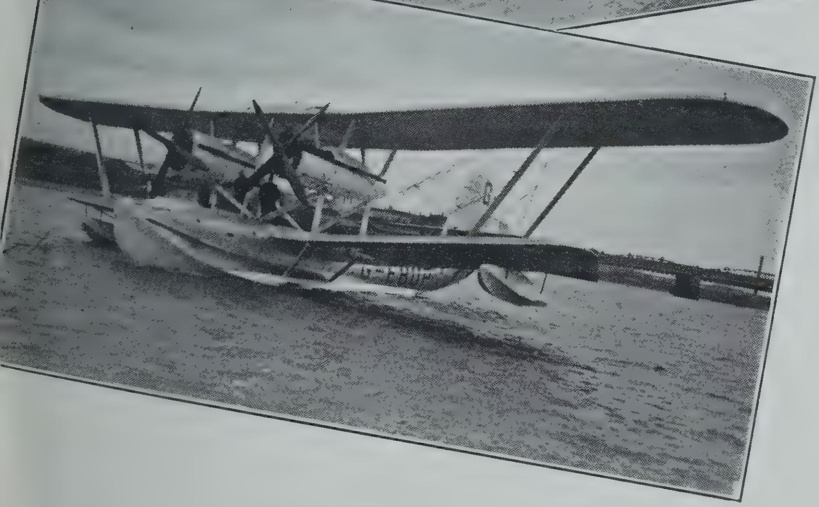
Weight.—760 lb. (346 kg.).

Performance.—525 b.h.p. at 1,900 r.p.m. Fuel consumption 0.55 (0.25 kg.) per h.p. hour at rated output. Oil consumption 0.022 (0.01 kg.) per h.p. hour.



The 525 h.p. Wright Cyclone engine.





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(Rolls-Royce "Condor" Engines.)

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A VISIT TO THE R.101.

On Thursday, Aug. 23, by invitation of the Air Ministry, a party of the General and Technical Press paid a visit to the Royal Airship Works at Cardington to see the airship R.101 under construction.

The Royal Airship Works were originally constructed during the war by Short Bros. for the building of war-going airships, and were taken over by the Government after the war. Many relics of the founders still remain, including the table silver, which bears the name "Short Bros." for the benefit of souvenir hunters, and the village which was originally built for and is now occupied largely by the airship workers.

The Pillars of the Airship Movement.

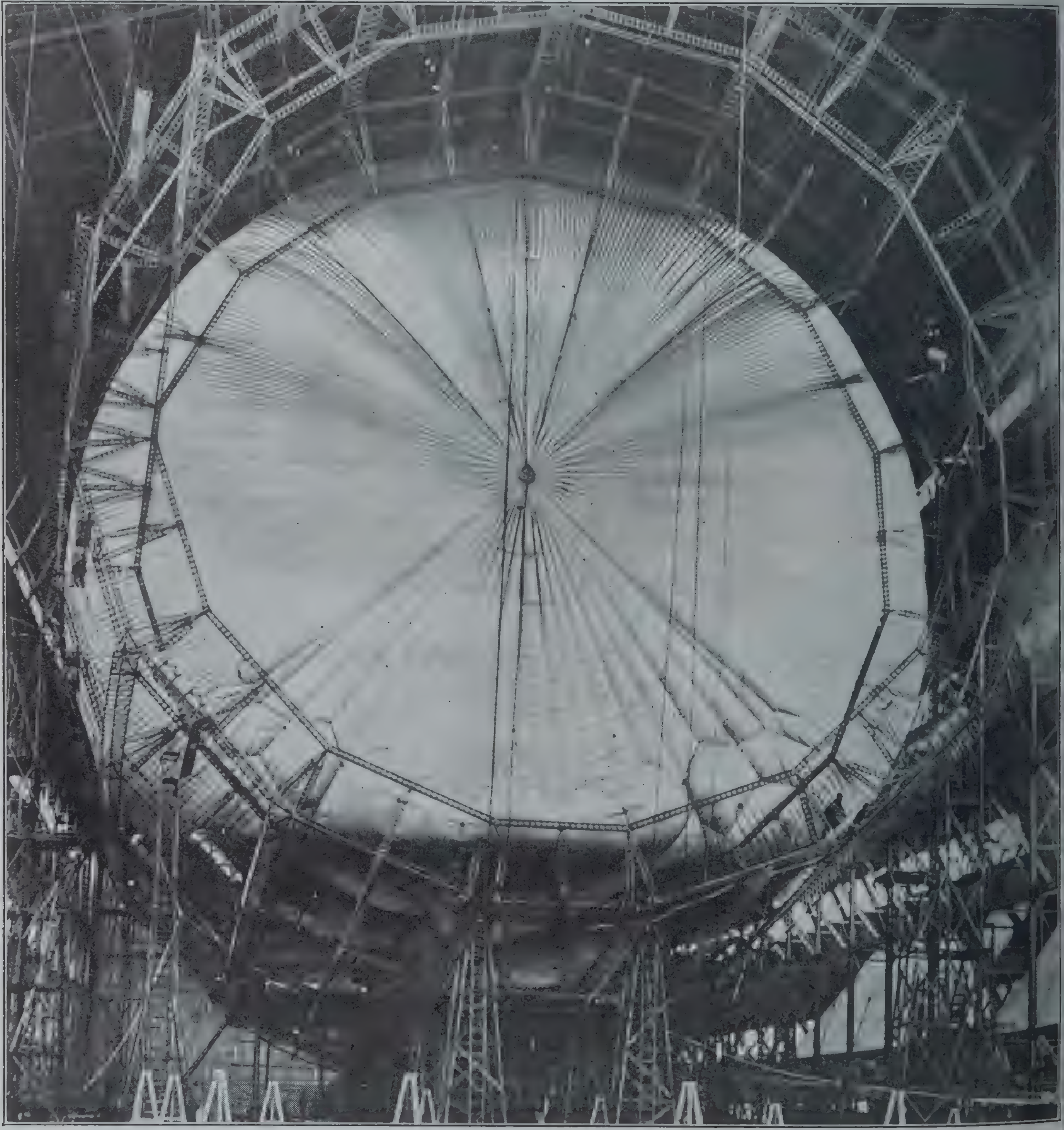
One was rather impressed on arriving at Cardington with the personalities of practical airship people. Hitherto one had only come into contact with the Buttresses of the airship movement (who support it from the outside, as differentiated from the Pillars who support the movement from inside the airship itself). The Buttresses hate having their own legs or those of their beloved gas-bags pulled, and have practically no sense of humour. The Pillars are just like normal flying people and can see the humours of airships in the same way as most aeroplane people [bar a few high-class scientists.—Ed.] can see the humours of their kites.

On arrival at Cardington the party was divided into grou each under the command of an officer. Personally one car under the charge of Flt. Lt. H. C. Irwin, with whom o was able to revive memories of Roehampton in the summ of 1915 when we played kite balloons together there.

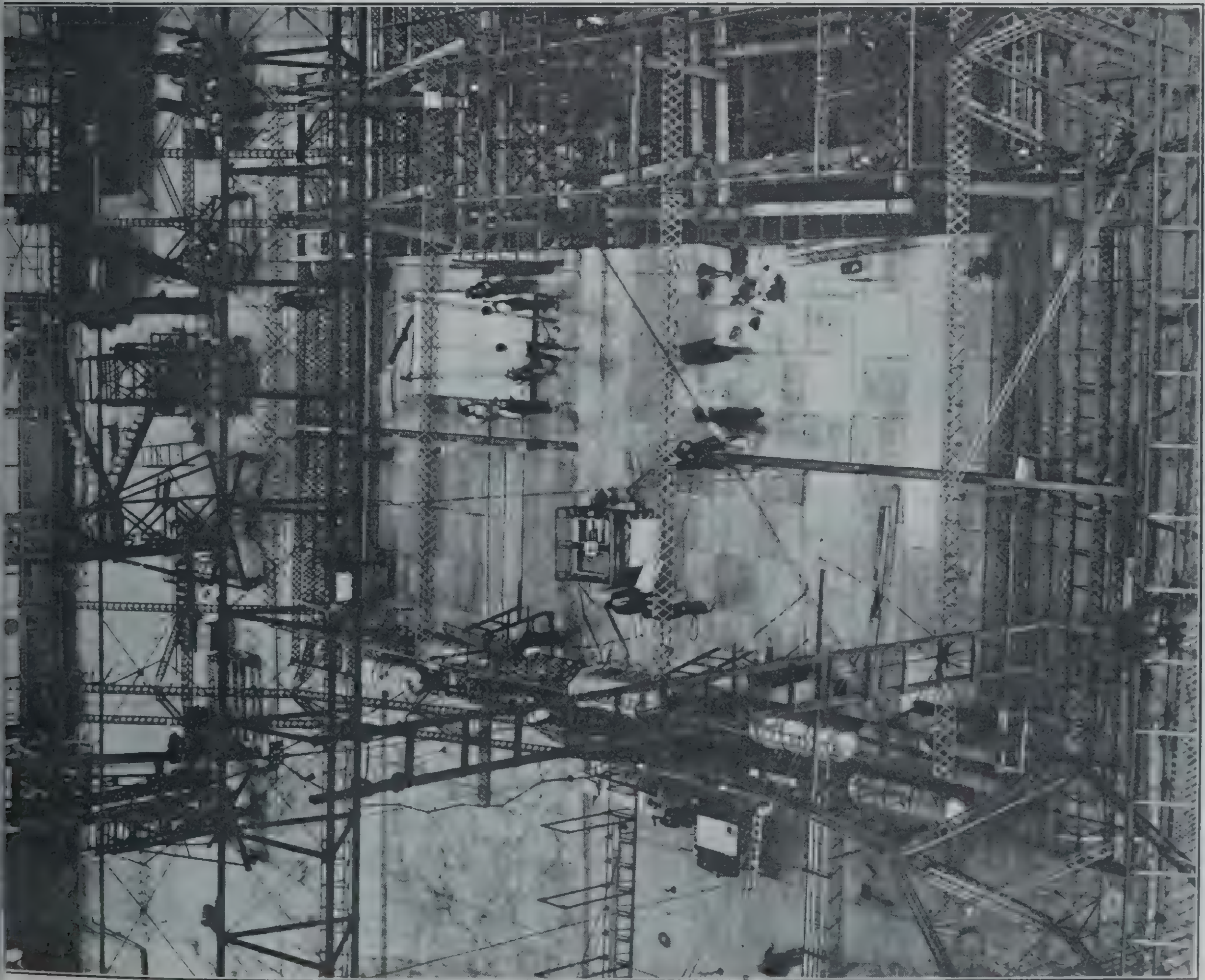
Before going into the gigantic shed where the complet parts of the R.101 are being assembled we were relieved all pipes, matches, cigarettes, etc., as the filling of one the gas-bags had begun.

Personally one is not easily moved to heroics, elegia epics and the like, but nevertheless on entering the sh one was quite definitely filled with awe (there is no oth word which describes the feeling) on seeing the enormo dimensions of the airship. It conveys very little to say th she is 730 ft. long and 130 ft. in diameter. The height the top of the framework above the floor seems absolute appalling.

All the parallel sections of the frame are in position a the rounded nose portion and the tapering tail only are be erected. The girders have been built up by Boulton a Paul from Reynolds steel tubing. When it is realised th the actual erection of the completed section was only beg in June it can be seen that construction is in a fairly a vanced state. An unofficial official opinion (is that what



AT CARDINGTON.—One of the gas-bags of R.101 inflated.—("*Aeroplane*" *photograph.*)



AT CARDINGTON.—On the left, looking down onto the main floor of the passenger-department of R.101. On the right, a "close-up" of the inflated gas-bag. (The big rods on the left of this picture are part of the shed, not of the ship.)—(*"Aeroplane" photographs.*)

usually called "semi-official"?) gives the date when the airship will be completed and ready to take the air as somewhere about next April.

BUTCHERED TO MAKE AN AIRSHIP HOLIDAY.

One gasbag is already in position inflated. It is stated that twenty million bullocks have been necessary to provide the gold beaters' skin for lining the sixteen gas bags. This should give Lord Banbury, as chairman of the N.S.P.C.A., as sufficiently justifiable and intelligent a cause as Mr. Spanner's for condemning all airships whether or not they use gold beaters' skin. One does not know whether the remark is original but it has always struck one that Mr. Spanner's dislike of gas bags is because of the fundamental law that likes repel.

It is not one's purpose (or in one's power) at this season to be technical, but nevertheless it must be said that the R.101 appears to be a very definite advance in airship practice. To take only one point it is surely a wise precaution to make a definite breakaway from the petrol engine. It is true that the new heavy-oil Beardmore engines may not be sufficiently far advanced yet. But *then no engine ever* will be until it is used actually on an airship. And a month in the air under practical people will probably bring about more progress than a year on the bench under the supervision of technicians.

Anyone who has ever been in a big airship on a hot day, particularly when she is riding at the mast, knows how the whole ship reeks of petrol fumes which are in their most explosive state. The danger of explosion of hydrogen is almost negligible compared with the danger from petrol. And then again the petrol engines used in airships in the past have never been particularly noted for their reliability.

A COMPARISON.

Some idea of the size of the R.101 as compared with the R.33 can be obtained thus. The automatic valves on the sixteen gas bags of the R.101 can, in the event of the airship meeting a vertical current of 4,000 ft. per minute (which is said to be the maximum vertical current conceivable under the most abnormal conditions) can, in one minute and one third, exhaust as much gas as was contained in the whole of the R.33.

The passenger quarters of the ship are progressing rapidly. The lounge, dining-room and smoking-room appear to compare favourably in size and in comfort with a sea-going ship of the *Minnewaska* class, though the cabins and promenade decks are somewhat restricted. One gathers that the passenger accommodation on R.101 is rather more spacious than on R.100.

PRACTICAL POINTS.

The R.101 is designed to give a lift of 150 tons and to have a range of 4,000 miles at a cruising speed of 63 m.p.h. The full speed of the ship at first will not exceed 70 m.p.h. But if the measuring instruments show that the strength is to expectation the top speed will be capable of considerab increase.

Before leaving Cardington the party was shown one of t new Beardmore heavy-oil engines actually running on hea oil. A variable metal airscrew made by Metal Propelle Ltd. was attached. The blades of this screw can be reverse thus removing the necessity of heavy engine gearing. spite of the fact that it was running in a corrugated ir shed the engine was not unduly noisy, and out in the op one was assured that it runs very quietly.

There is much research work being carried on at t moment on the meteorological and navigation side. Eve day the personnel of the airship make imaginary flights India, U.S.A., and Canada. They take the cruising spe of the ship and with the aid of the weather forecasts an taking into account the actual weather at the time of the imaginary arrival at the various points, they plot course This affords very valuable experience of the prevailing co ditions and should be of great help by the time the shi are ready to run on service.

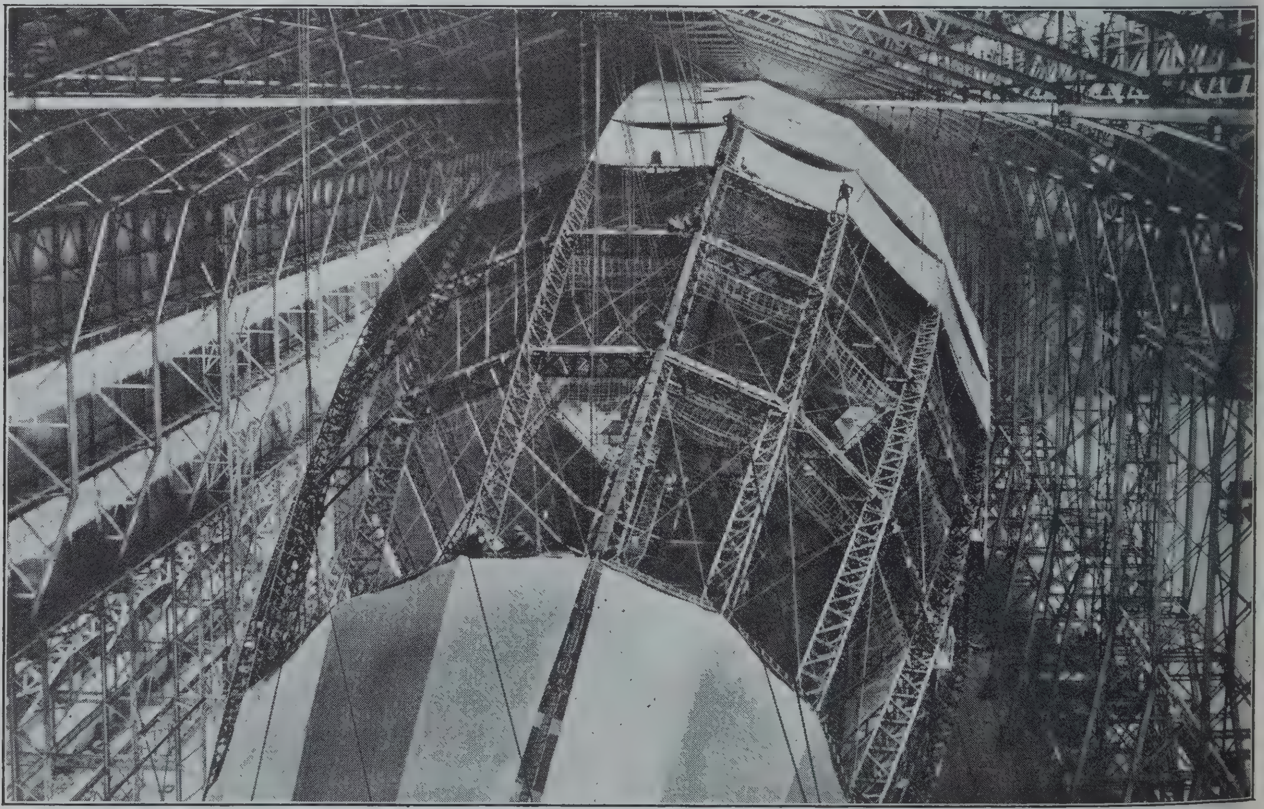
One certainly left Cardington with a feeling of great confidence in the future of airship travel than one has ha in the past. As one said in the beginning, the Airshi people seem to be approaching the matter in such a co mon-sense and practical way.

Nothing is being left to chance or science that can tested out in practice beforehand. Anything that has to left to chance or science will be put to practical proof at t very earliest possible moment.

HINC ILLÆ LACRIMÆ.

The party, by invitation of the Air Ministry, sailed f Bedford by the 09.25 hrs. train from St. Pancras. The sa Air Ministry has much to learn on the question of the wa to do things. For instance, without extra charge to grateful country, they could have reserved a special co partment on the train for the party. They could even ha arranged to purchase (C.O.D. of course) tickets in advanc This would have made it unnecessary for the party to ha mixed itself up, both in the hundred yard long booking offi queue and in the packed excursion train, with a howli mob of sweet-sucking schoolchildren.

Also it is usual at these affairs, when their whole object to obtain publicity for the article visited, to provide phot graphs for the benefit of the Press and their readers. A co prehensive set of pictures was doled out to all the membe of the party, but on the envelope which contained them w a notice stating that full reproduction fees would have to paid to the Air Ministry. One doubts whether this exhi tion of parsimony will affect the seventeen-odd millions the Air Estimates by so much as a ten pound note eith way.—G. D.



PROGRESS AT HOWDEN.—The Capitalist Ship (R.100) approaching completion.

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THE FLYING CLUBS.

The Lancashire Aero Club.

Report for week ending Aug. 25.

The aerodrome having been closed until Aug. 25 there is no record of flying.

Flt. Lt. H. C. Todd will begin his duties as Instructor and Aerodrome Manager on Saturday, Sept. 1. In the meantime Mr. H. A. Brown will officiate at the aerodrome.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending Aug. 26.

Flying Time 24 hr. 5 min. *Instruction* 9 hr. 35 min. *"A" Pilots* 8 hr. 40 min. *Soloists* 50 min. *Passengers* 4 hr. 50 min. *Tests* 10 min. *Instruction.—With Mr. J. D. Parkinson*—Miss Forster, Miss Yendall, Messrs. Dickinson, Foster, Sadler, Walker, Temple, Griffiths, McLean, Dr. Walker. *"A" Pilots.*—Mrs. Heslop, Messrs. Irving, De Pledge, Turnbull, C. Thompson, Shaw, Wilson, W. B. Ellis, Dr. Dixon *Soloist.*—Mr Sadler.

Mr. Sadler, one of our youngest members, made his first solo.

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Aug. 25.

Flying Time 29 hr. *Dual* 15 hr. 15 min. *Soloists* 10 hr. 25 min. *Passengers* 3 hr. 20 min. *Instruction.—With Mr. Beck*—Miss Ellison, Mrs. Cator, Messrs. Dujardin, Bamford, Lloyd, Evans, Watson, Ambler, Gill, Palmer, A. Senior, G. Senior, Ostler, Ives, Gaunt. *"A" Pilots.*—Messrs. Ambler, Thomson, Humpheries, Ellison, Norway, Lax, Birch. *Passengers.*—14.

On Wednesday we had an unexpected but welcome visit from Sir Sefton Brancker. Other visitors this week have included two Berkshire pilots and Mr. Fred Holmes of that firm.

To-day we have returned "SV" to Brough for C. of A., etc., its engine having done some 250 odd hours without being touched.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Report for week ending Aug. 25.

Flying Time 29 hr. 36 min. *Dual* 13 hr. 35 min. *Soloists* 9 hr. 15 min. *Passengers* 6 hr. 10 min. *Tests* 36 min. *Instruction.—With Flt. Lt. T. Rose and Mr. W. H. Sutcliffe*—Messrs. T. W. Wild, R. G. Welch, A. E. Coltman, D. N. Khatrie, G. P. Haylock, R. B. Laidlaw, L. H. Lee, S. Duckitt, E. D. Wynn, F. J. Steward, J. W. Astley, M. Blakeway, J. C. Williams, J. A. Ridsdale, J. Fitzgerald, D. W. Tilleke. *Soloists.*—Messrs. E. P. Lane, J. R. Guthrie, E. R. King, J. Edwards, R. L. Brinton, J. Cobbe, E. L. Hulme, R. C. Baxter, G. C. Jones, J. Rowley, L. H. Lee, M. A. Murtagh, W. J. Willis, G. Robson, W. W. Astley, S. H. Smith, R. D. Bednell, G. E. C. Hill, H. Tipper. *Passengers.*—11.

On Thursday Mr. J. W. Astley was launched solo and put up a very good performance.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, Hamble Aerodrome, Southampton.]

Report for week ending Aug. 24.

Flying Time 58 hr. 20 min. *Instruction* 26 hr. 55 min. *"A" Pilots* 13 hr. 20 min. *Soloists* 4 hr. 20 min. *Passenger Flights* 11 hr. 45 min. *Tests* 2 hr. *Instruction.—With Flt. Lt. Swoffer and Mr. W. H. Dudley*—Mr. Cambell, Cdr. Tower, Mr. Dickson, Mr. Bull, Cdr. Creswell, Miss Home, Mr. Wills, Cdr. Bell, Mr. Sturge, Lt. Mandeville, Mr. Beagley, Lt. Collier, Mr. Curtis-Nuthall, Lt. Coveney, Mr. Buckley, Mr. W. S. Hall, S/Lt. Colls, Mr. Scott Hall, Mr. M. S. Hall, Mr. Wells, Mr. Goldman, Miss Melvill, Mr. Makgill, Mr. Richardson, Mr. Mattocks, Mr. Berney, Lt. Oswald, Mr. Snowden, Mr. Brewster, Dr. Bowden, Mr. Reuther, Mr. Alsford, Mr. Cator, Mr. Drury, Mr. W. Martin, Mr. Knight, Mr. T. Martin, Mr. Agar, Mr. Turner, Mr. R. H. Alsford, Lt. Roskill, Lt. Des Graz, Mr. Weeks. *"A" Pilots.*—Mr. Hoare, Miss Grace, Capt. Kirby, Lt. Collier, Lt. Heath, Mr. Wills, Mr. Michelmore, Mr. Wells, Capt. Bott, Mr. Hayter, Don J. de la Cierva, Mr. Parker, Mr. Sanders Clark, Lt. Fagan, Lt. Heineman. *Soloists.*—Cdr. Tower, Mr. Watt, Mr. Sturge, Mr. Curtis-Nuthall, Mr. Scott-Hall, Mr. Southey. *Passengers.*—30.

We have been visited this week by Mr. S. F. St. Barbe, of Skywriting fame, and by Mr. H. S. Broad, who came down in the Gipsy Moth in which he has just made a new Endurance Record.

Mr. Goldman did his first solo quite successfully.

Flt. Lt. Swoffer has been testing the Simmonds Spartan and he considers it the best school machine yet brought out. The forward view is excellent, the controls are sensitive and on landing the machine pulls up in a very short distance. Flt. Lt. Swoffer is of the opinion that the Spartan will well stand up to hard Club work.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending Aug. 26.

Flying Time 21 hr. *Instruction.—With Mr. Young*—Messrs. C. Ransom, C. Bethell, H. Neave, C. Land, D. Corsellis, O. Bougret, G. Wharton. *Soloists.*—Messrs. H. Pank, E. Varden Smith, H. Neave, A. G. Marshall, R. T. Harmer, H. Cator, D. Corsellis, G. F. Surtees, F. Gough, W. A. Ramsay, R. F. Potter. *Passengers.*—27.

Mr. D. Corsellis drifted into the ranks of the soloists with all the ease imaginable on Friday.

We read the leading article on Flying Clubs in this week's Aeroplane with interest, and certainly "Pure Democracy" in Aero Clubs is a revelation. We did not think it was at all our job to be over-democratic when, considering all things, we appear to have undertaken the task of advertising and cramming flying broadcast amon the none too susceptible public of ours.

No, we never turn down support of aviation and we are certainl far from introducing such pure democracy which appears so aki to snobbishness. Rather than that, we welcome with open arms an person who is interested enough to spend money on flying and so ai on a good cause which is commercially and socially sooner or lat bound to be one of the mainstays of this country.

The Nottingham Aero Club.

[Hon. Sec.: C. R. Sands, Hucknall Aerodrome, Nottingham.]

Report for week ending Aug. 24.

Flying Time 15 hr. 35 min. *Instruction* 6 hr. 40 min. *"A" Pilo* 35 min. *Soloists (under instruction)* 6 hr. 15 min. *Passengers* 1 h. 25 min. *Tests* 40 min. *Instruction.—With Mr. Martin*—Messr Drakeford, Thorpe, Lazzirini, Winn, McWilliam, Cudlip, Hancoc Thirlby. *Solo "A" Licence.*—Messrs. Bradley, Silvey. *Soloist (under instruction).*—Messrs. Bradley, Silvey, Hatton, Glenn, Calladine, Taylor, Chawla, Hancock. *Passengers.*—Miss Bowden, Mis Bure, Mr. Franklin.

It is with sincere regret that we place on record the fatal acciden which occurred on Wednesday, Aug. 22. Mr. R. A. Blake (one our directors and an original member) took up Lieut. W. Richardso as a passenger on SK, and about a mile from the aerodrome th machine nose-dived and burst into flames on hitting the ground.

The Club, on its own behalf, and on behalf of the relatives of th two members, here records its sincere appreciation of the many telegrams and letters of condolence it has received from other clubs.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P L. Holmes, D.S.C., The Aerodrome, Hadleigh Suffolk.]

Report for week ending Aug. 25.

Flying Time 18 hr. *Instruction* 7 hr. 40 min. *"A" and "B" Pilo* 3 hr. *Passenger Flights* 7 hr. *Tests* 20 min. *Passengers with M Lowdell.*—40. *Instruction.—With Mr. Lowdell*—Miss S. Edwards, D Mildred Yate, T. and B. F. Marriage, R. Brown, Ogilvie, Pettiwar Read, Billinton, Welsh, Hanson, Smith, Jolly. *"A" and "B Pilots.*—Dr. J. C. Sleigh, Mr. C. N. Prentice.

The Clacton Air Rally.—On Aug. 24 a successful air display wa held before some 10,000 spectators at Clacton-on-Sea. The organisation was done by the Suffolk and Eastern Counties Aeroplane Club i conjunction with Mr. Edward Jones, who has a Licensed Aerodrom for Joy-Riding. Mrs. Ruth Knowles, Skipper of the "Friend Ship, was also interested in the affair and the Display was made th occasion of a special appeal to the rising generation.

Eight machines assembled. These were two Suffolk Club Bluebir piloted by Dr. J. C. Sleigh and Mr. G. E. Lowdell, the "Frien Ship" Bluebird piloted by Capt. Oxley Boyle, an Avro 504 pilote by Mr. E. Jones, a Moth piloted by Miss O'Brien, Capt. White an Mr. Holman on a Slotted Moth, Mr. Murray on a Moth, and M Cazalet on his Widgeon.

The programme opened with formation flying over the town. Th was followed by aerobatic displays by Mr. Lowdell and Mr. Jone During the morning visiting machines arrived and joy-rides were give the first part of the day's proceedings ending with converging bombing by Messrs. Lowdell and Jones, the targets being two solo moto cycles and a motor-cycle combination. Several direct hits were obtaine much to the delight of the crowd. This appeared on the screen i the local cinema after the Display and made a most effective pictur

The afternoon programme started with a Grand Fly-Past by a the assembled machines. This was followed by an aerobatic di play by Miss O'Brien and formation flying by the Suffolk Clu machines.

Many passengers were carried between events, which included a ver excellent demonstration of the slotted Moth by Mr. Holman of th De Havilland Flying School, aerobatics by Messrs. Lowdell and Jon and more bombing.

The Isle of Purbeck Light Aeroplane Club.

[Sec.: Lt.-Col. Louis Strange, D.S.O., M.C., D.F.C., Worth Matraver Dorset.]

Report for week ending Aug. 25.

Flying Time 8 hr. 5 min.

On Wednesday the Spartan was sent to Christchurch to retur the compliment to the Bournemouth section of the Hampshire Ae Club and assist in passenger flights, which included our good frien Major March, Station Director of the B.B.C., Bournemouth, who, havin been a keen hunting man, apparently took exception to some unflagg wire, and our "first whip" being in full agreement removed same, pos and all, amidst much applause. This incident rather naturally nece sitated complete rebuilding of the starboard side of chassis.

At 04.00 hrs. Thursday a new chassis arrived and the Spartan wa again serviceable at dawn. Full marks Simmonds and Co.

At 09.15 hrs. Mr. Banting left Christchurch for Hendon and broug the Director of Civil Aviation to Dorchester, where, thanks to h (Sir Sefton Brancker's) inspiring words, the Dorsetshire Aero Clu was formed with H.Q. at Dorchester, and we hope shortly thr other branches like our own in the county. So there ought to good hunting round about Dorset next season.

The return journey with General Brancker, via Worth Matraver Bournemouth, and Hamble to Croydon, was completed to schedu and the Spartan returned to Hamble at 20.25 hrs.

[The balance of Club Reports have been held over owing to pressu on space.—Ed.]

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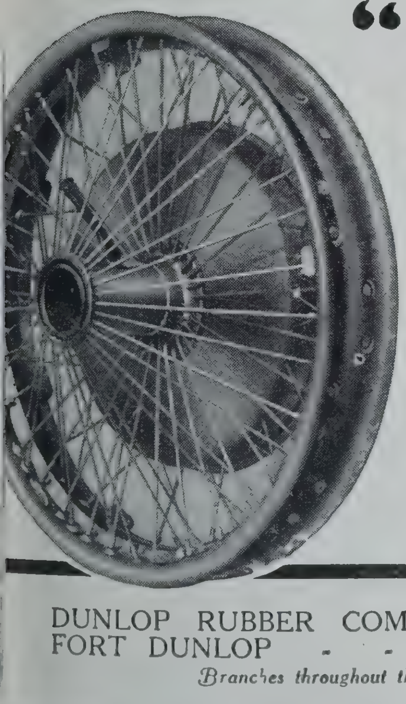

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 13; Monday, 42; Tuesday, 41; Wednesday, 40; Thursday, 44; Friday, 45; Saturday, 40.

Imperial Airways Ltd. :
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 103, passengers 984, freight 27 tons.

Air Union :
Paris—London and return: Machines 79, passengers 413, freight 12 tons.

K.L.M. :
Amsterdam—Rotterdam—London and return: Machines 33, passengers 222, freight 4 tons.

Sabena :
Brussels—London and return: Machines 13, passengers 114, freight 1½ tons.

Deutsche Lufthansa A.G. :
Amsterdam—London and return: Machines 24, passengers 63, freight 4½ tons.

Miscellaneous :
British machines 6, passengers 6.
Foreign machines 7, passengers 7.

Total number of trips by British Machines, 109, carrying 990 passengers. Foreign Machines, 156, carrying 819 passengers.

COMPARATIVE FIGURES.

Week ending Aug. 25:
Machines, 265; Passengers, 1,809; Crews, 511; Total personnel, 2,320.
Corresponding week, 1927:
Machines, 203; Passengers, 1,089; Crews, 373; Total personnel, 1,462.
Corresponding week, 1926:
Machines, 175; Passengers, 960; Crews, 214; Total personnel, 1,174.
Corresponding week, 1925:
Machines, 168; Passengers, 968; Crews, 243; Total personnel, 1,211.
Corresponding week, 1924:
Machines, 137; Passengers, 669; Crews, 165; Total personnel, 834.
Corresponding week, 1923:
Machines, 121; Passengers, 578; Crews, 194; Total personnel, 772.
Corresponding week, 1922:
Machines, 159; Passengers, 506; Crews, 272; Total personnel, 778.
Corresponding week, 1921:
Machines, 103; Passengers, 427; Crews, 129; Total personnel, 556.
Corresponding week, 1920:
Machines, 104; Passengers 219; Crews, 129; Total personnel, 348.
Corresponding week, 1919:
Machines, 16; Passengers, 54; Crews, 18; Total personnel, 172.

Note.—In addition to the Croydon traffic shown above, K.L.M. have during the past week run 12 machines, carrying 5 tons of newspapers between Lympne and Ostend.

Croydon Notes.

August is still with us, yet there is a certain sere and yellow look about the retiring American tourists who still throng our one hundred per cent. British Air Port. "The Fall" will shortly be upon us and Botley will retire into cloud permanently. A quaint place to live in must be this same Botley, for however unpleasant the weather on the air routes may be it always seems to be worse at Botley.

The retreat of the sere and yellow tourist reminds us, despite dividends and record-breaking, epoch-making weeks of traffic by air, that without cousin Silas Q. Attaboy we should be in a poor way for passengers. We may legislate for the "Business Man" and arrange our services to the Continent so that he can answer his morning mail, have his morning coffee, snatch a drink when they open and still catch our 3.30 service to the Continent and do a day's work in Paris or Amsterdam after tea, but what do we really find on our 3.30 service? Why, sixteen American tourists, one lady of pleasure, and one depressed business man who missed the previous evening's boat.

To strike a more optimistic note, however, we may say that the number of real business men who travel by air steadily if slowly increasing. Speaking to a promin shipping man the other day, we were informed that whi air travel bored him and made him ill, he simply had to it because it saved him time.

Miss Boll, Mr. Bert Acosta and Mr. Levine propose start from Croydon for New York as soon as weather con tions are favourable. Their Junkers machine, similar to Bremen, is housed at Croydon, and a runway has be marked out from the Control Tower straight across the Plough Lane level crossing. The pilot believes he will in the air before he reaches the level crossing, and we ho this will be the case, not only for the sake of those in aeroplane, but also on account of those householders Wallington who live in the direct line of flight, and w will probably be topping their breakfast egg about the ti of the take-off.

Mr. van Lear Black, the American business man who travelled some 70,000 miles with K.L.M. has returned America until early next year. On his return, he propo to fly from London to Cape Town and back, and then ma a return trip London—Tokyo.

After this his aeroplane, a Fokker monoplane with th Wright Whirlwinds, will be shipped to his home town, Ba more, and from there a series of trips all over America a into Canada will be made. From Baltimore, too, he will around the coast of South America and back. It will c tainly be a feather in the cap of the K.L.M. to tour No and South America with one of their machines, piloted Messrs. Geysendorffer and Scholte, who have accompan Mr. Black on all his flights.

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General Aviation Supply Company.—Private Co. Registered July Capital £1,000 in £1 shares. Objects: To establish and carry on a sch of aviation, and to carry on the business of manufacturers and pairers of and dealers in aeroplanes, hydroplanes, seaplanes, etc. directors are:—J. S. Lord, "Adamroyd," Todmorden; Mrs. Houghton Wade, 11, Agnew Street, Lytham. Solicitor: J. R. By Union Bank Chambers, Lytham. Registered Office: Union B Chambers, Lytham.

PERSONAL NOTICES.

Forthcoming Marriages.

BARLOW—ANDERTON.—The engagement is announced of Flg. Richard Hugh Barlow, R.A.F., elder son of Col. Sir Hilary W. Barlow, Bt., C.B., C.M.G., and Lady Barlow, of Thruxton, Andover Rosamund Sylvia Anderton, younger daughter of the late Mr. F Anderton and Mrs. Temple, wife of Lt.-Col. R. D. Temple, D.S of Hyde Hall, Great Waltham.

PYNE—HAIG.—An engagement is announced between Flt. Reginald Pyne, D.F.C., R.A.F., youngest son of the late Mr. Will Pyne, of Reading, and Miss Agnes Kathleen Haig, daughter of and Mrs. H. E. Haig, of Clayton, Dairsie, Fife.

Marriage.

RADCLIFFE—GREENWOOD.—On Aug. 18, at Cheltenham, Fr Radcliffe, B.Sc., A.R.Ae.S., younger son of Wm. Radcliffe, of Burn Lans., to Emmeline Greenwood, M.Sc., younger daughter of J. Greenwood, of Todmorden, Yorks.

Births.

BRIE.—On Aug. 21, at "Rocquaine," 36, Glebelands Avenue, W ford, E.18, to Dorothy (*née* Agnew), wife of Reginald A. C. Reserve of Air Force Officers—a daughter.

HUNT.—On Aug. 20, at Hill Farm, Ellisfield, Basingstoke, Frances (*née* Selmer), wife of Frederick John Hunt, D.F.C.—a daugh

JENKINS.—On Aug. 18, at Docking, to Flt. Lt. and Mrs. E Jenkins—a son.

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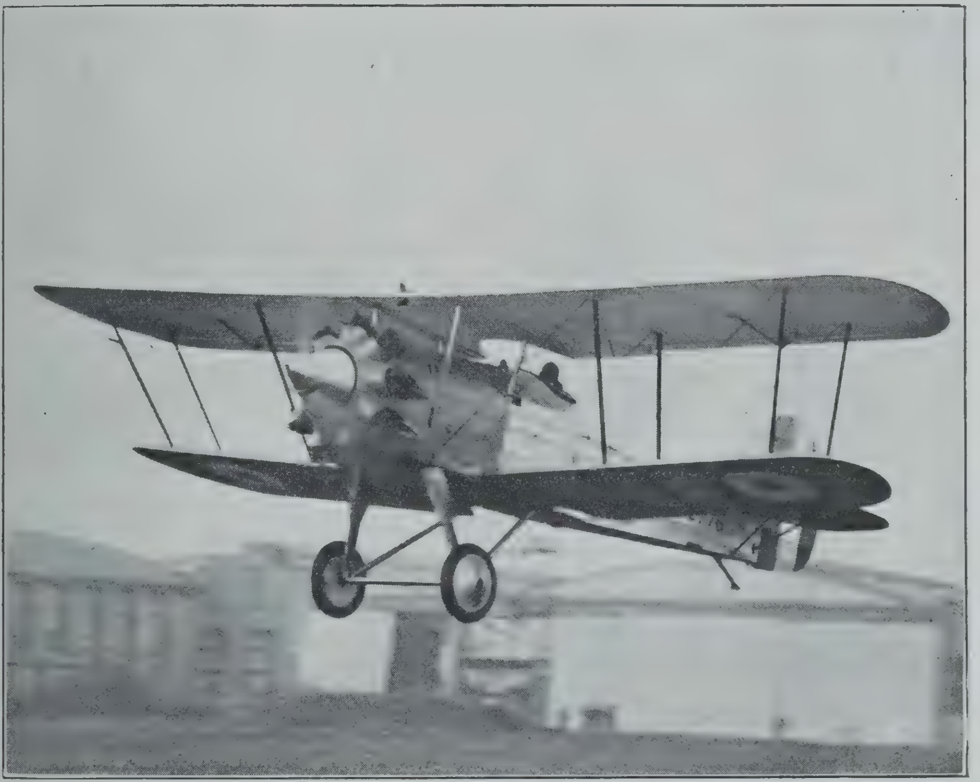
HAWKER AIRCRAFT



"Aeroplane" Photograph.

The Hawker "Hawfinch" is a new single-seater machine for day or night fighting, representing the latest developments in this class. It incorporates the Hawker patent system of metal construction, thereby facilitating production and reducing maintenance problems.

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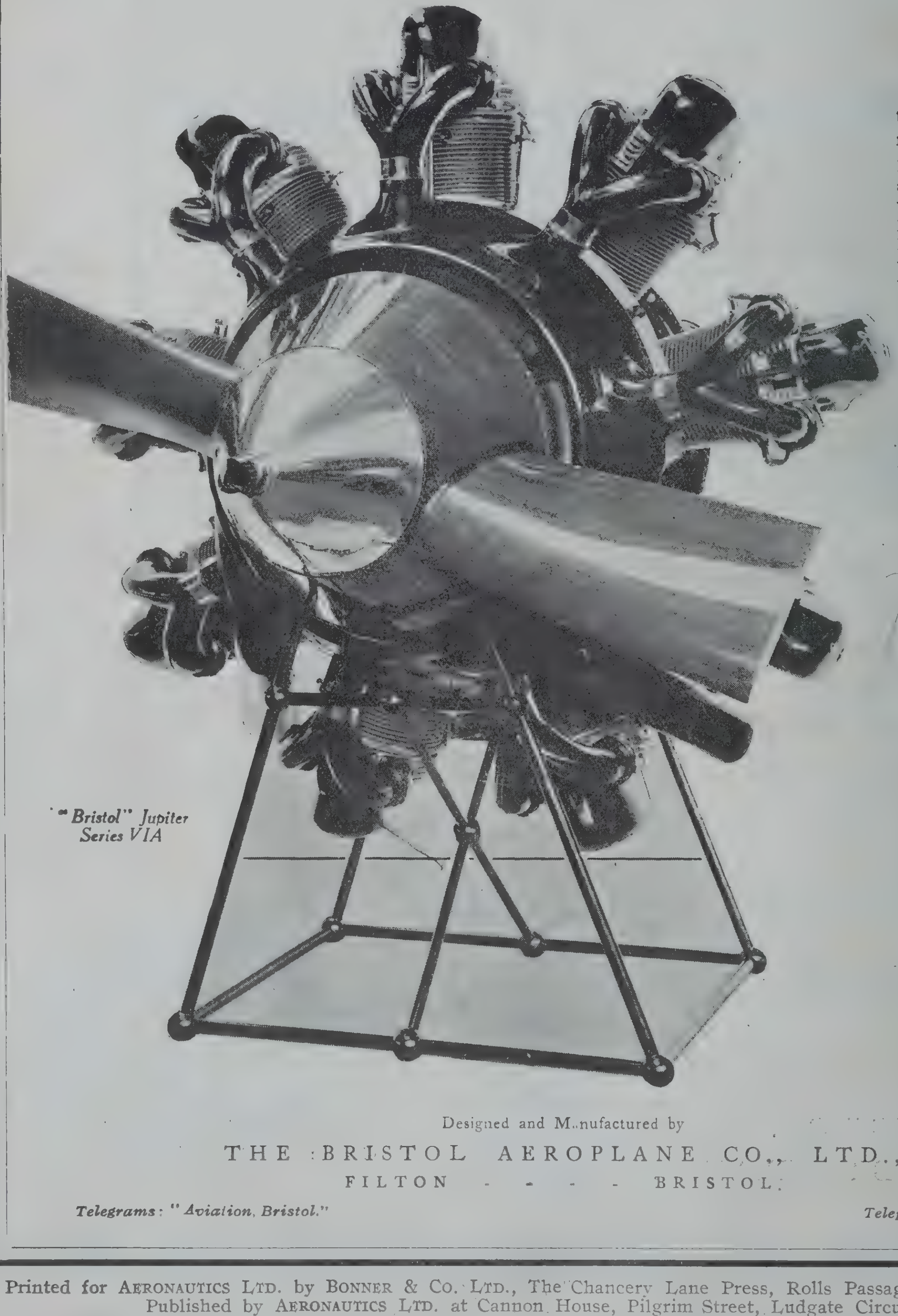
"Bristol"

JUPITER UNGEARED ENGINES.



"Bristol" Jupiter Series VIA

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(Ungeared, high altitude, 3·6 compression ratio.)

Power at 5,000 ft:—415 at 1,700, 455 at 1,870 with 80/20 fuel.

Equivalent Ground Level Powers:—520 at 1,870 with 50/50 fuel.

Weight:—720 lbs. bare, 770 lbs. complete, ready to fly.

JUPITER VIAM.

(Ungeared, general service, 5·3 compression ratio.)

Power at Ground Level:—445 at 1,700, 485 at 1,870 with 80/20 fuel.

Weight:—720 lbs. bare, 780 lbs. complete, ready to fly.

JUPITER VIAL.

(Ungeared, commercial, 5 to 1 compression ratio.)

Power at Ground Level:—420 at 1,700, 460 at 1,870 with aviation fuel.

Weight:—720 lbs. bare, 780 lbs. complete, ready to fly.

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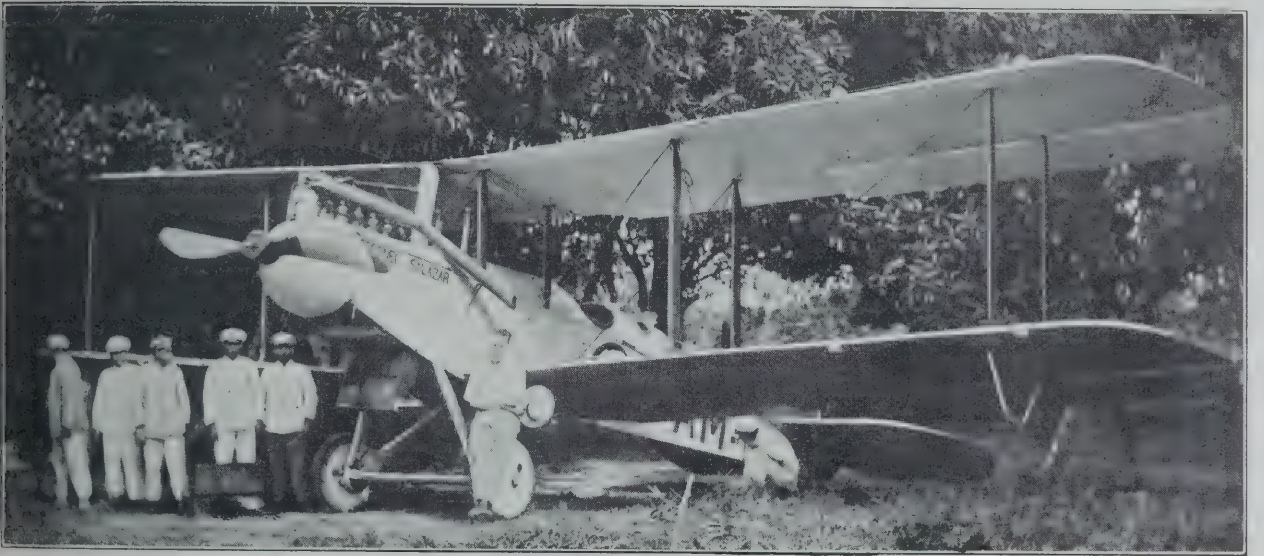
"AND THOU ART FLYING TO A FRESHER CLIME."

(SHAKSPEARE—*Richard II.*)



FINISHING UP :—Mr. J. R. King at Cobija, Rio Acre, Bolivia, with his D.H.9 (Puma) "Coronel Salazar," in which, used alternatively with wheels or floats, he has for several years been flying in Equatorial South America. The machine was supplied by A.D.C. Aircraft Ltd. Mr. King is now on his way home.

Captain Courtney ON HIS MARCONI EQUIPMENT.

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ON AVIATION IN THE LOWLANDS.—II.

AT HAREN.

t the Brussels-Haren aerodrome one found enormous
vity. We just struck it at the busy hour in the middle
he day when what is known as "*correspondance*" was
ull blast. On the ground when we arrived was a three-
ined Sabena-Handley Page, a twin-engined Handley Page
nging to Imperial Airways, three K.L.M. Fokkers, a
nan Jabiru and about half a dozen assorted single-engined
hines which were too far away on the aerodrome to be
ly recognisable. Inside an hour the whole lot had cleared
o various destinations, North, South, East and West.

he aerodrome buildings at Haren are not so beautiful as
e at Schiphol and Waalhaven. They are older and have
more wear and tear. But new buildings are being
ted and, from what one saw of them, one can safely say
when they are finished they will be for their size com-
ble with any in the World. Also an elaborate arrange-
t of concrete run-ways and debarkation places is being
out for several hundreds of yards.

their buildings are not up to the Dutch standard, one
at any rate say that the officials of the Sabena (*Société*
nyme Belge d'Exploitation de la Navigation Aérienne)
in no way behind their colleagues in Holland in the
ters of efficiency and courtesy. One arrived without any
ductions and, unfortunately, without any of THE AERO-
E's official cards with which to introduce oneself, but
ybody from the Custom's officials upwards and down-
ls did everything possible to facilitate our movements.

e particularly wishes to acknowledge here the kindness
efficiency of Mr. Mertens, the official interpreter of the
na. Not only did he perform his duties for all the
us passengers with skill and address, but after the
erous air liners had departed he gave up the sacred hour
e *déjeuner* to acting as one's guide, philosopher, and
d during a prolonged and very interesting visit to the
s of the Sabca firm (*Société Anonyme Belge de Con-*
tions Aéronautiques) which are on the aerodrome.

AT THE SABCA WORKS.

One arrived there with an introduction from friend Koolhoven to M. Poncelet, Manager of the Sabca works. At the moment M. Poncelet was busy on the Military side of the aerodrome, as his firm has big orders in hand for the Belgian Army. He telephoned that he would arrive as soon as possible and that in the meantime one was to be in charge of M. Joseph Goudentops, his chief technical assistant, and formerly a well-known war pilot in the Belgian Service.

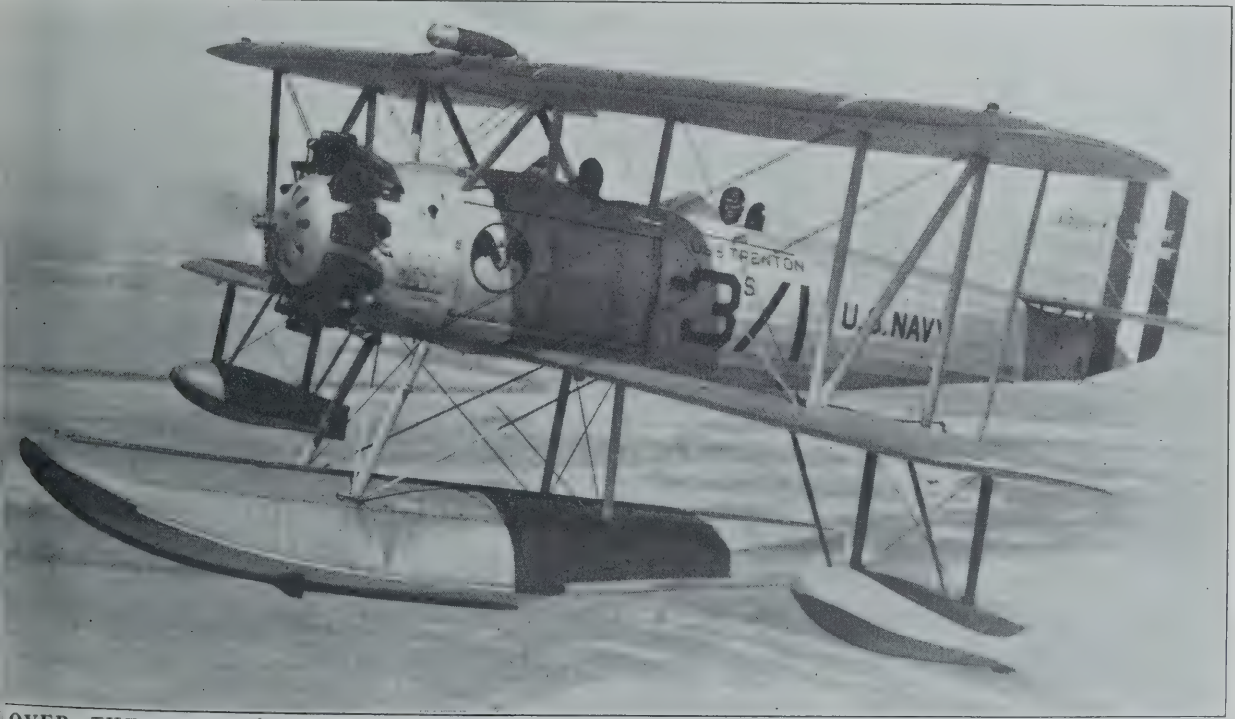
In effect, M. Poncelet and M. Goudentops arrived almost simultaneously, and one had the honour of being escorted round the works by both of them. The Sabca works are extremely interesting, for the work in hand includes everything from the biggest to the smallest types. And in addition the firm is building Jupiter engines under sub-licence from the Gnôme-Rhône firm.

The first thing to which one was introduced was a very neat light aeroplane designed by M. Goudentops. This is a three-seater monoplane with a Walter (Czecho-Slovak) radial engine. The passengers and pilot sit in tandem, one passenger in front and one behind the pilot. Only the fuselage was finished, but from what one could see of the general lay-out it looks like being a very interesting and highly efficient little aircraft.

In the same shed was an experimental machine of quite a startling type. In front of the wings of a fairly normal biplane projects an enormous bulbous nose. Stowed away inside it is an air-cooled engine of sorts, which drives by way of gearing an internally-toothed ring which revolves outside the bulbous nose. And on the outside of this ring are a multitude of small airscrew blades.

In front of this multi-bladed airscrew sits the pilot, where he is quite sure of collecting anything that he happens to meet. It is rather like the old American Gallaudet, only in that the airscrew ring revolved round the fuselage behind the wings. The machine is *not* of Sabca design.

Also in this shed was what must be very nearly the last



OVER THE CARIBBEAN.—A Vought Corsair two-seat observation shipboard biplane (425 h.p. Pratt and Whitney Wasp engine), belonging to the U.S. light cruiser "Trenton," flying over Guantanamo Bay, Cuba, during the last U.S. Navy manœuvres. The Corsair is a convertible land or seaplane and is standard equipment in the U.S. Navy and Marine Corps.

one-and-a-half strut Sopwith in the World. One gathers that it is used for joy-riding.

In another shed were a couple of those interesting little Poncelet "D.P. Limousine" monoplanes which have already been illustrated in The Aeroplane and in *All the World's Aircraft.* With a 50 h.p. Anzani engine, which is none too reliable at best, this side-by-side cabin machine puts up a speed of something between 80 and 90 miles an hour, which shows it to be quite efficient.

In the shed also was a single-seat all-metal monoplane fighter with a Jupiter engine. This has been designed and constructed by a young Belgian engineer, whose name one was unable to obtain. One gathered that the machine was merely being garaged in the Sabca works and that the firm has nothing to do with its construction. It is built entirely of some aluminium alloy and though there are obvious defects in the lines of its fuselage, it is certainly an interesting experiment.

About the most interesting new construction in the Sabca works is an enormous monoplane with a span of 28 metres, or something over 90 feet, which is being built for a through service between Belgium and the Congo. It is to have three engines giving a total of 1,500 h.p. (type not disclosed) and the designers hope that it will do the journey regularly in six days. The cabin accommodation in the vast fuselage seems to be about as big as that of the average Pulman car. One looks forward with interest to the first appearance of this distinctly unusual machine.

A large section of the Sabca works is being devoted to the production of the Breguet XIX, a type which entails an enormous amount of special tool-work to produce the colossal number of intricate aluminium parts of which the machine is built. It is said to be very cheap to build when once the tools have got to work. And, of course, all the World knows that the machine, when finished, is a highly efficient aircraft. But one is struck by the thought that by the time the tooling-up of a factory is finished the machine itself is already out of date.

There is room for plenty of argument as to which is the better proposition for mass-production in time of war. On the one hand is the Breguet requiring heaps of tools, operated by people with no mechanical knowledge. On the other is the Fokker needing a certain amount of trained workers, but otherwise nothing but plenty of timber and steel tubing, and buzz-saws, hack-saws, glue-pots and gas-pipes.

Among the other products of the Sabca works are a number of Avias built under licence from the well-known Czecho-Slovak firm. These are exceptionally well built and show that the Sabca people can produce aircraft whic workmanship are the equal of any in the World.

Altogether one was very much struck not only by the of the Sabca factory and the amount of work in pro there, but by the high quality of the workman Although one has known the name of M. Poncelet for years as a clever and intellectual designer, one hac realised that the Sabca works were anything like as portant as they are. One thanks M. Poncelet anc Goudentops very sincerely for all the time they devote showing one their products and for their extreme courte giving one, by way of the helpful Mr. Mertens, so interesting information.

One's visit to Haren was ended by a pleasing drive Brussels is one of the Sabena 'buses, a very comfortable well equipped affair. The K.L.M. people and the Sa seem to realise fully the importance of transporting passengers in comfort between their cities and their dromes, leaving the mere slowness of the journey to home the essential difference between air and gr transport.

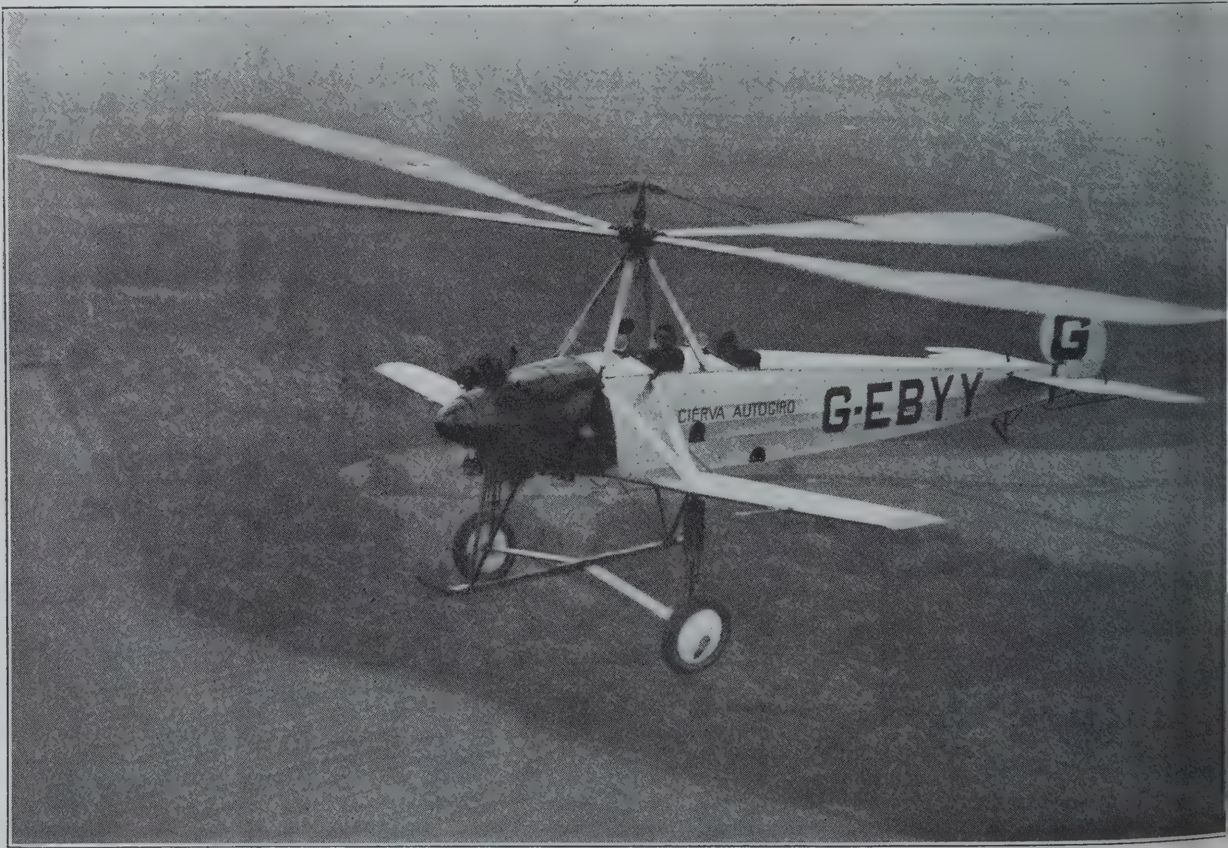
Some Gossip.

That ended one's brief investigation of Civil Aviatio Holland and Belgium. One only wishes that there had more time in which to converse with people at the va places one visited. Being so much on the direct lines all parts of Europe those concerned with Civil Aviatio these countries pick up quite a lot of extraordinarily inte ing bits of information about what is being done and tho in other countries.

For example, someone remarked that during the visit to the Belgian Congo the King and Queen of Belgians travelled several thousands of kilometres by air the Congo forests and rivers and so, travelling in com saved themselves many days of uncomfortable journe boat. Surely if a King and Queen think that the time s justifies the extra risk of travel by air, that is the possible argument in favour of ordinary beings using transport.

Another amusing little bit of gossip picked up in Ho is that the German Government is financing Herr O experiments with the rocket-driven car and the rocket-d aeroplane with the idea that a similar system of propu may be used to help heavily-laden aeroplanes to get off dromes which otherwise would not be big enough for the

One offers this information to the Air League for p gandist purposes. They will surely be able to persuade misguided members that with the help of such appar when fully developed, Germany, or France, will be ab



THE TRAVELLING ROUNDABOUT.—The Cierva Autogiro (Lynx engine), piloted by Mr. A. H. C. Rawson, flying with a passenger somewhere in the region of Cramlington, Northumberland, during its recent tour round Great Britain.—*(Photograph by courtesy of the Newcastle Aero Club and the "North Mail.")*

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SPEED 283.313 m.p.h.

The Napier aero engine was fitted to the De Havilland "Hound" aeroplane which holds the World's air speed record over 100 kilometres while carrying a load of 1,000 kilograms

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The Napier aero engine was fitted to the De Havilland "Hound" aeroplane which holds the World's air speed records over 500 kilometres while carrying loads of 500 and 1,000 kilograms

SPEED 158.663 m.p.h.

The Napier aero engine was fitted to the Supermarine-Napier seaplane which won the Schneider Trophy for Great Britain in 1927

SPEED 281.6 m.p.h.

The Napier aero engine was installed in the four Supermarine-Napier flying boats which flew from England to Australia

144,000 engine miles

The Napier aero engine was fitted to the Fairey-Napier aircraft which on two occasions have flown from Cairo to Cape Town and back

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drop at least 50 per cent. more bombs on defenceless London (Down with the Air Ministry!!) because the machines will be able to get off with a bigger load.

Incidentally, one's informant stated emphatically that during the War the British Navy used a somewhat similar device to give extra speed to submarines so that when one of them happened to be located at a certain spot it might add for a short time many knots to its speed and thus escape from the area which would be combed-out for it by hostile surface-ships, the captains of which would assume that with its known speed it could not be in a certain time outside a certain radius of the place where it was located.

MACHINE-GUN ARRANGEMENTS.

Yet another piece of interesting gossip is the fact that the latest German theory of air fighting entirely does away with interrupter-gears and the need for firing through an airscrew. The latest idea seems to be to cock the machine-guns up so that they fire upwards just over the disc covered by the airscrew. Prism sights are used.

Instead of attacking a bombing machine by diving on it from above, or flying level with its tail, where the attacker would be an easy mark for all the machine-guns in the bomber, the idea is that the fighter shall fly straight along underneath the big machine and rake it from end to end. Thus he would only be subject to the fire of guns below the bomber.

The claim is made that even in a dog-fight between single-seat fighters this gun-arrangement has advantages. In attacking with guns firing straight ahead the attacked machine, if at all skilfully handled, can be only momentarily in the sights of the attacker's guns. But with cocked-up guns, so one is told, a pilot can do a steep turn or a loop and keep his sights on the target machine while it also is being turned or looped.

Of course Germany is not allowed to make any fighting machines, but even the Treaty of Versailles cannot prevent the ingenious German mind from thinking out the problems of the next war. And it cannot prevent clever German pilots from experimenting on fast single-seat civilian machines with cocked-up camera guns. So perhaps it might be worth our while to try a few experiments of our own along these lines.

Incidentally, one's informant says that the guns are not fixed with the barrels dead parallel with one another, but that one is cocked-up slightly more than the other so that the streams of bullets cover a greater area.

THE BELGIAN LITTORAL.

Finally, as to the much advertised Belgian Litt
doubtless so called from the French word *lit*, a bed, a
are probably more beds to the foot-run of coast-lin
anywhere else in the World. (Thank you, Mr. Cl
Scholar. One *does* know the true etymology of littoral

Why anybody wants to go there one cannot unde
Ostende is a kind of Blackpool. Heyst is Margate
the Jews to make it funny, Duinberg and one or two
superior places about reached the level of Cliftonville
Knocke-Zoute may perhaps be compared in thei
esteemed super-superiority with Westgate or Broa
Living costs at least as much as it does at any Englis
side resort and the material of the food is not as
Wines, beers and liquors are as dear as they are in E
and in the hotels a trifle more so, class for class. Mot
is a good deal dearer than in England.

The water-supply is hard enough to take the edge
rough file, let alone a razor. If there is a canal to wi
one might as well be in a London sewer. The san
good so long as there is an on-shore breeze, but wh
wind is off-shore and the weather is warm there is a
of black flies. There is nothing in the shops which
be bought better and cheaper in England. The sole
tion of the coast line is the good-nature and courtesy
indigenous inhabitants. And one gathers that most o
get away from it in the Winter.

Decidedly Bruges, Brussels and the interior of Belgi
well worth visiting. Brussels needs re-painting, b
must make allowances for what the War cost Belgium

One of the chief entertainments of Brussels seems
running charabanc trips for English visitors to the
field of Waterloo at 45 francs (about 6s.) per head.
passing a few dozen of these vehicles, a bright young
remarked, "I wonder whether they contribute to ou
ing-fields." (Etonians please note.)

About the one saving grace of the Belgian Littoral
one can get the London papers there before mid-day
day of issue, thanks to a highly efficient K.L.M. service
has been flying the papers to Ostend. Also, if one h
doubt about the time, one can generally set one's wa
the inward and outward K.L.M. machines between
and Amsterdam. Which is another advantage which
League might produce as showing the superiority of
aviation as against this country in which we have
lines by which to set our clocks.—C. G. G.

M. BOKANOWSKI.

All who are concerned for the welfare of aviation will learn with the deepest regret of the death of M. Bokanowski, the French Minister of Commerce and Secretary for Aviation, who was killed in a flying accident near Toul on Sept. 2.

M. Bokanowski and three other passengers were starting from Toul in a Spad biplane to fly to a meeting at Clermont Ferrand. According to local reports the machine got off badly and after travelling about three kilometres the engine began to mis-fire. The machine lost flying speed, nose-dived into a field and caught fire.

Apparently it was a very ordinary case of the pilot misjudging his speed and stalling the machine, and it seems to have resembled the unfortunate accident which occurred recently to an Imperial Airways single-engined machine which was making a test flight. The machine belonged to the *Compagnie Internationale de Navigation Aérienne* and was not a French Service machine. Those who have seen the old type Spad biplanes which used to operate from Croydon will not be at all surprised at the accident. Though quite fast when in the air they always seemed to take off with difficulty and their wing section seemed such as to give them an inclination to stall suddenly. The later type with greater power developed from that early type is practically an enlarged version of it.

M. Bokanowski was a young man to hold such an important office, being only 49 years of age. He was a man of remarkable intelligence and genuine ability. Obviously by his name he was of Polish extraction but in speech and manner he was typical of all that is best in the commerce and politics of modern France. That he should have died in a singularly stupid aeroplane accident is one of the greatest tragedies that has happened to French Aviation for many years. One can only hope that it may direct the attention of those who are responsible for French Civil Aviation to the importance of providing adequately for the safety of passengers by air, a matter in which French Aviation has been notoriously bad ever since Commercial Aviation began.

On this point one must refer to a flagrant injustice committed by a writer in the London *Daily Express* who produces daily gossip under the pseudonym of "The Dragoman." Referring to this accident he says :—

> The French Air Force has recently been suffering from a terrifying number of accidents—almost as many, perhaps, as those of the Royal Air Force—and the terrible accident in which M. Bokanow
> his life yesterday near Metz is likely to cause consternation
> nautical circles.

In the first place M. Bokanowski's accident had not
do with the French Air Force. It was purely a com
affair.

In the second place, and this is where gross injusti
obvious prejudice is shown, the death rate from ac
in the French Air Force is very much higher in pro
to the mileage flown than it is in the Royal Air
There was absolutely no excuse or reason whate
dragging into this paragraph either the names of the
Air Force or the French Air Force.

On the other hand, one does agree with "The Drag
that M. Bokanowski's death is likely to cause conste
in aeronautical circles in France. If for that reason
thing is done after all these years to make Frenc
Aviation as safe in proportion to the mileage flow
Civil Aviation all over the British Empire (remember
extraordinarily fine record of Civil Aviation in Austra
Canada) or even if it can be made as safe as is flying
Royal Air Force under Service conditions, perhaps
of M. Bokanowski may not have been wasted.—C. G.

The following telegram has been sent by Sir
Hoare, Secretary of State for Air, to His Exceller
French Ambassador :—

> I am profoundly grieved by the news of yesterday's deplora
> dent and of the sad and irreparable loss which the French Gov
> and French aviation have sustained in the tragic death of
> Bokanowski. Your Government has my deepest sympathy and
> ask you also kindly to convey to Madame Bokanowski an ass
> my sincere condolences.

Sir Samuel Hoare has asked the British Air Att
Paris to convey the following message to the Chief
Direction de l'Aéronautique :—

> Air Council are deeply grieved to learn of deplorable
> involving death of M. Bokanowski and tender their profound s

CAPTAIN AMUNDSEN'S FATE.

According to Press reports a fishing vessel picke
seaplane float near Tromsö and this float has sin
identified as part of the Latham seaplane on whic
Amundsen set out to attempt to locate and rescue
vivors of the Italian airship *Italia*.

From this evidence the conclusion has been dra
this machine was lost at sea relatively shortly after
Tromsö on June 18 and that all the crew have peris

THE 1928 ROYAL AIR FORCE AIR MANOEUVRES

Extracts from Official Communiqués

" . . .the "Foxes" proved too fast, and no casualties were claimed.
14.8.28

" The most interesting feature of this evening's operations was an attempt to intercept the fast "Fox" bombers" . . . "but once more the "Foxes" escaped, thanks to their great speed."
15.8.28

Extracts from Daily Press

"The sensational feature of the manoeuvres has been the ability shown by a high-performance bomber, the " Fox," to escape interception, a number of these "Foxes" have run the gauntlet of the defences again and again," . . . "the "Foxes" actually outstripped the machines that were intended to cut them off and succeeded in dashing out of the war-zone unscathed." "In the vital problem of bomber v fighter, the "Fox" has scored an emphatic triumph for the former."

The " Daily Mail." 17.8.28

"One of the most remarkable facts emerging from the manoeuvres is the extraordinary success of a fast type of bomber known as the "Fox."

"A squadron of these machines, flying at great heights and speeds, has penetrated the defence zone again and again" . . . . "the bombers proved actually faster than their assailants, and managed to escape without losses." "They have gained a signal triumph."

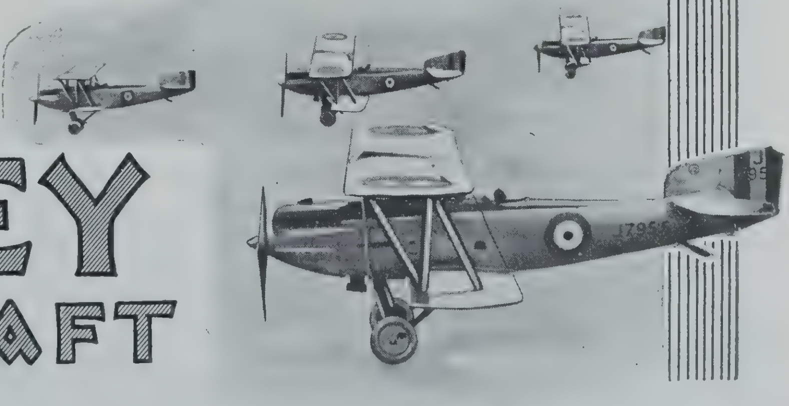
The "Daily Chronicle." 17.8.28

"In the judgement of the experts the only type of bombers that are of any use for this work are high speed, self-fighter bombers, such as the Fairey Napier III. F. and the 'Fox.' "

The "Evening News." 17.8.28

The Fairey Aviation Company were the originators of the high-performance day-bomber. It is the application of intensive scientific research and careful attention to streamlining that has rendered possible the outstanding performance of modern Fairey Aircraft.

The
Fairey Aviation Co., Ltd.
Hayes, Middlesex



FAIREY
AIRCRAFT

A PROBLEM IN AERODYNAMICS.

The Japan Advertiser of Aug. 7, describing the mishap to the two Polish aviators who fell into the Atlantic in an attempt to fly to America, says, " the fliers were reversing the plane between Portugal and the Azores when the accident occurred."

This is evidently a mis-translation of a Polish telegram by an English journalist in Japan. It was equalled somewhere early in 1911 by a scientific colleague on the old blue *Aero* who picked up a photograph of the tail-first Voisin *Canard*, which, being a dual control machine, was described by the French photographer as an *" appareil á double direction."* " Ah," said he, looking very wise, " I see the French have produced an aeroplane which flies either way."

Strange to say, scientists are still undecided as to whether a dragon-fly flies backwards.

AN ATLANTIC ATTEMPT FIASCO.

On Aug. 25 Capt. Coudouret, accompanied by Lieut. de Mailly-Nesle and Capt. Mailloux, attempted to take off from Le Bourget in a Bernard monoplane to fly the Atlantic.

After a long run the machine jumped a brook, continued for a further 1,000 yards, and brushed through some trees and then approached some high-tension cables. The pilot realising that he could not clear these went underneath them, only to be faced by a set of telephone wires too low to permit him to repeat the performance. He attempted to rise over the wires, but was unable to clear them, and the machine tore them down, at the same time damaging its underslung radiator and undercarriage.

He then returned to Le Bourget, and after releasing some of his petrol landed safely.

ANOTHER ATLANTIC ATTEMPT.

Sergeants Assolant and Lefevre, who are proposing to attempt to fly the Atlantic in a Bernard monoplane (Hispano-Suiza engine), made their first essay on Sept. 3.

In the presence of a large crowd of soldiery, police, journalists and others, they covered a fraction of the distance to America across Le Bourget Aerodrome, but the machine came to a stop without leaving the ground. It was found on examination that the petrol had not been turned on.

On Sept. 4 they succeeded in getting off, and at the time of going to press news of them was awaited.

THE FATE OF THE SAN RAPHAEL.

During the last week in August an aeroplane wheel and tyre was washed up on the coast of Iceland. The tyre bore the marks " Palladium Cord, Aero Standard, 1000 x 220, 106009, 7-27."

From these particulars *Etablissements Palladium* of Paris have definitely identified the tyre in question as one of a pair supplied to the Fokker Works, and there is strong reason for believing that it was fitted to the *San Raphael*, the Fokker F.7 on which the late Lt.-Col. Minchin and Mr. Leslie Hamilton, accompanied by Princess Lowenstein-Wertheim disappeared in the course of an attempted Atlantic flight which started on Aug. 31, 1927.

This find would appear once and for all to refute the belief that this expedition succeeded in crossing the Atlantic and was lost in some desolate part of Canada.

INDIA—ENGLAND.

On Sept. 2 Mr. C. D. Barnard and Mr. E. H. Alliot
Karachi on the Fokker monoplane *Princess Xenia* (B
Jupiter engine) in an attempt to fly from India to En
in four days. They reached Bushire, a distance of
miles, the same day.

On Sept. 3 they left Bushire for Aleppo.

It will be remembered that they attempted to fly
England to India, accompanied by Her Grace the Du
of Bedford, some time ago, but after reaching Bushi
three days were compelled to abandon their flight owi
airscrew and engine trouble.

AN UNSUCCESSFUL EFFORT.

Herren Risticz and Zimmerman, who last year set
World's Duration Record of over 65 hours on a Ju
W.33 machine (Junkers L.5 engine), left Dessau at
hours on Sept. 2 on an attempt to break the World's
tance record, flying the same machine as that used for
duration flight.

Bad weather forced them to land near Moscow on the
ing of the day of starting.

AN AUSTRALIA—NEW ZEALAND A SERVICE.

According to a statement from Sydney a representati
the Dornier Company is at present in Australia where
making proposals for flying-boat services between Aus
and New Zealand and Australia and Tasmania.

He has approached the Controller of Civil Aviation
reference to the grant of a mail subsidy for the operati
a Sydney—New Zealand service by a company finance
English, Australian and New Zealand capital, probably
some support from the Dornier Company. The sugge
is that Dornier Wal flying-boats with British engines s
be used.

In reply to a question in the House of Representa
on Aug. 24, Mr. Bruce, the Prime Minister, said tha
Postmaster-General would confer with the agents of
company.

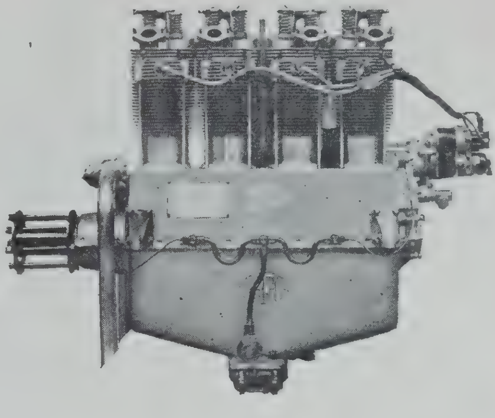
Another report from Melbourne says that Mr.
Hinkler, Mr. Parer and a Mr. Burlington are associated
the formation of a company to operate a flying-boat se
between Sydney and Wellington. This company states
they will commission within a year two 15-seater Austra
built all-metal amphibians each fitted with two British
gines, but that owing to lack of British backing it is
templated that there will be 25 per cent. foreign int
in the company. These two reports may possibly refer t
same subject.

MUNICIPAL AIRMINDEDNESS.

The Lord Mayor of Manchester has announced tha
proposes to convene a meeting of prominent Manch
business men, including representatives of the Chamb
Commerce, the Royal Exchange, and the various c
associations, for the purpose of considering the desira
of founding a municipal aerodrome.

The Hull Chamber of Commerce and Shipping has
pointed a special committee to advance a proposal fo
establishment of an air service for the transport of
between England and the Continent with Hull as the
warding point. The committee has been empowered t
opt the services of an aeronautical adviser.

EQUATORIAL AVIATION.—Mr. J. R. King flying the Bolivian D.H.9 (Puma engine and Short floats) a Riberalta on the Rio Beni. He is now on his way back to England.



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LONDON — CAPETOWN. IN 13 DAYS.
LONDON — CAPETOWN. Lady Pilot.
CAPETOWN — LONDON. Lady Pilot.
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t KING'S CUP AIR RACE, 1927. 1st SIDDELEY TROPHY, 1928.
etc., etc.

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Constructors of "MARTINSYDE" Types of Aircraft.

Telegrams—
Airdisco, London

THE ROYAL AIR FORCE.

Appointments.

Week ending Sept. 3.

General Duties Branch.—Squadron Leader K. M. St. C. G. Leask, M.C., to No. 1 S. of T.T. (Apprentices), Halton, 20/8.

Flight Lieutenants C. H. C. Woollven, M.C., to R.A.F. M.T. Depot, Shrewsbury, 26/8. T. P. Y. Moore, to R.A.F. Station, Tangmere, 15/8. E. J. Cuckney, D.S.C., to R.A.F. Station, Worthy Down, 12/8. R. J. M. De St. Leger, to R.A.F. Station, Kenley, 15/8. A. T. Laing, to R.A.F. Station, North Weald, 15/8. A. F. Scroggs, to R.A.F. Depot, Uxbridge, 17/9. L. Young, to R.A.F. Station, Upavon, 14/8. C. S. Richardson, to No. 13 Sqdn., Andover, 24/8.

Flying Officers G. H. Huxham, to No. 4 Sqdn., Sth. Farnborough, 30/8. A. C. Evans-Evans, to R.A.F. Station, Upper Heyford, 24/8. H. I. Cozens, to R.A.F. Depot, Uxbridge, 3/9. R. O. Jones, to R.A.F. Depot, Uxbridge, 16/9. A. F. Hutton, to R.A.F. Depot, Uxbridge, 29/9.

Stores Branch.—Flying Officers R. N. Hesketh and B. G. Pool, to Home Aircraft Depot, Henlow, 7/8.

Pilot Officers G. Matthews, E. N. A. Crowe-Browne, M. J. Scott, L. F. Oldridge, A. W. Rule, J. S. French, E. J. H. Starling, P. Dennehy, J. W. Hunt, P. V. Edwards, H. E. Freeston, J. E. Reynolds, F. G. Lee, all to Home Aircraft Depot, Henlow, 7/8.

Prize Cadetships at Cranwell.

The Air Council have awarded Prize Cadetships of a value of £105 per annum for two years to the following successful candidates at the examination held in June last for entry into the Royal Air Force Cadet College, Cranwell :—

D. R. S. Bader (St. Edward's School, Oxford), A. G. Cleland (Hereford High School), R. B. Dashper (Shaftesbury Grammar School), C. E. Littler (Rossall School), R. F. Smith (Highgate School), D. G. Vaughan-Fowler (Imperial Service College).

Fatal Accidents.

The Air Ministry regrets to announce that as the result of an accident at Abu Sueir, Egypt, to an Avro machine of No. 4 Flying Training School, Abu Sueir, on Aug. 29, 1928, 353030 L-AC. Sydney Charles Stevens, the pilot and sole occupant of the aircraft, was killed.

The Air Ministry regrets to announce that as the result of an accident near Nocton, Lincolnshire, to an Avro machine of No. 2 Flying Training School, Digby, on Aug. 30, 1928, Plt. Off. James Graydon Riess, the pilot and sole occupant of the aircraft, was seriously injured and died in hospital on Aug. 31, 1928.

The Air Ministry regrets to announce that as the result of an accident at Amman to a D.H.9a machine of No. 14 (Bombing) Squadron, Amman, on Aug. 31, 1928, 335369 Sjt. Victor Robert Saunders, the pilot of the aircraft, and 335898 L-AC. Frederick William Fletcher were killed.

The Air Ministry regrets to announce that as the result of an accident at Grantham to an Avro machine of No. 3 Flying Training School, Grantham, on Aug. 31, 1928, Plt. Off. Edward Leo Johnstone, the pilot and sole occupant of the aircraft, was killed.

The Air Ministry regrets to announce that as the result of an accident at Great Glen, near Leicester, to a D.H.9a machine of No. 605 County of Warwick (Bombing) Squadron, Auxiliary Air Force, Castle Bromwich, on Sept. 2, 1928, Plt. Off. George Herbert Aldridge, Auxiliary Air Force, the pilot and sole occupant of the aircraft, was killed.

The Far-East Flight.

The four Supermarine Southampton flying-boats (Napier Lion engines) of the Far-East Flight, under the command of Wing Cdr. H. M. Cave-Browne-Cave, D.S.O., D.F.C., arrived at Thursday Island on Aug. 28 en route for Singapore.

Sir John Salmond in Australia.

On Sept. 1, Air-Marshal Sir John Salmond, who has be advising the Commonwealth Government on the reorgani tion of the Royal Australian Air Force, arrived at Adelai from Oodnadatta, thus completing his flying tour of A tralia, covering a distance of approximately 4,000 miles. has now proceeded to Melbourne, where he will prepare report for the Government on the question of air defences

He will come Home by way of New Zealand and Cana

R.A.F. SPORTS.

Cricket.

The R.A.F. beat the Royal Navy at the Oval on Aug 27 and 28 by three wickets. They thus become the Serv cricket champions for the year, having beaten the Ar earlier in the season, also at the Oval, by 10 wickets.

The Navy won the toss and made a score of 296 in first innings. Sq. Ldr. C. B. Cooke bowled well, taking for 76. The R.A.F. then went in and scored 74 for 1 wic before stumps were drawn.

On the following day the R.A.F. carried their overni score to 285, Flg. Off. E. G. Northway making 83 in a pai taking innings lasting 4½ hours, during which he gave possible chance. Such an innings is often derided by th who, to be thrilled at all, must see the ball knocked o the stand on every conceivable occasion, but in a game t is so essentially a team game and not an individualistic such an innings can be of immense value to a side.

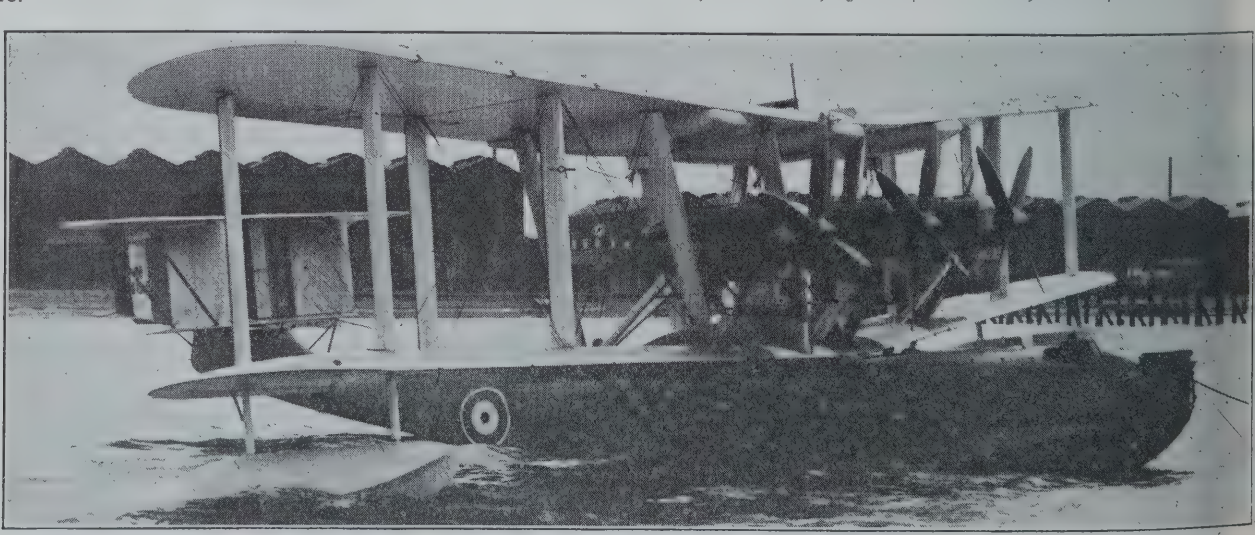
The Navy's second innings yielded 146, Flt. Lt. Fulljan taking 5 for 36, including the "hat trick." This left R.A.F. 158 to get to win. They started at ten minutes three and at tea time five wickets were down for 86. Ldr. B. E. Baker, Flt. Lt. V. Croome and Flt. Lt. C. Adams indulged in some hard hitting at a time when s was called for and managed to knock up the required r with three wickets still to fall.

The R.A.F. played very well indeed. Their fielding smart and clean and all catches were held. Their batt was resourceful and the bowling of a sufficiently varied ble to keep the "enemy" on the watch. Altogether an exc lent game that was in the balance right up to the end.

The details of the scoring were as follows :—

R.A.F.—Flg. Off. M. S. Shapcott, c. Shaw, b. Boucher, 30, b. Jephs 25; Flg. Off. E. G. Northway, c. Holland-Martin, b. Glenister, run out, 1; Wing Cdr. C. H. B. Blount, hit wkt., b. Gataker, 54, Brooks, 16; Flt. Lt. E. A. Fawcus, l.b.w., b. Jephson, 0, b. Brooks, Flg. Off. W. K. Beisiegel, c. Holland-Martin, b. Boucher, 10, not 0; Flt. Lt. R. E. G. Fulljames, l.b.w., b. Brooks, 8, c. Stephens b. Boucher, 1; Sq. Ldr. B. E. Baker, c. Halsey, b. Jephson, 24, out, 30; Flt. Lt. V. Croome, not out, 27, c. Shaw, b. Boucher, Flt Lt. C. D. Adams, b. Glenister, 23, c. Holland-Martin, b. Hals 24; Flg. Off. R. P. H. Utley, b. Brooks, 6; Sq. Ldr. C. B. Coo b. Brooks, 3. Extras, 17 and 13. Totals: 285 and 158 for 7 wkts.

Royal Navy.—Lieut. R. J. Shaw, c. Northway, b. Cooke, 33, out, 34; Capt. C. H. Congdon, R.M., c. Blount, b. Cooke, 37, l.b.w., Utley, 2; Pay Lieut. Cdr. Glenister, c. Croome, b. Cooke, 1, l.b.w., Cooke, 13; Sub-Lieut. K. A. Sellar, b. Fulljames, 38, c. Cooke, Utley, 6; Major R. A. D. Brooks, R.M., c. Adams, b. Cooke, 0, and b. Fulljames, 17; Sub-Lieut. R. H. Stephenson, b. Utley, c. Fawcus, b. Fulljames, 31; Lieut. Cdr. T. E. Halsey, not out, not out, 23; Lieut. Cdr. S. Boucher, b. Cooke, 39, b. Fulljames, Lieut. Cdr. S. V. Jephson, c. Adams, b. Cooke, 5, c. Utley, b. F james, 4; Sub-Lieut. Holland-Martin, b. Cooke, 9, b. Fawcus, 0; S Lieut. G. G. Gataker, st. Croome, b. Fulljames, 7, l.b.w., b. F james, 12. Extras, 15 and 4. Totals: 296 and 146.



THE SEAFARING BRANCH.—A Blackburn Iris, an all-metal long-distance reconnaissance flying-boat, with three Rolls-Royce Condor engines.

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Photo by 'Flight'

In preference to the many other machines available in the same category, Denmark has adopted Gipsy Moths for training purposes in the Royal Danish Air Force. Her choice, coupled with that of so many other important Dominion and Foreign Powers, is of immense significance, substantiating once again that Moth is "THE BEST LIGHT AEROPLANE IN THE WORLD."

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THE AFTERMATH OF THE DETROIT AIRCRAFT SHOW.

[*The following article has been written by one of the most experienced men in American Aviation. He has no interest in any one make or type of aircraft or engine, and his views may safely be taken as those of an unprejudiced observer with an intimate knowledge of his subject.*]

The outstanding feature of the recent Detroit Show was its purely commercial character. Of the two-score plane exhibitors, only one, Vought, is a purely military contractor. Two others, Fokker and Loening, have been military, but are working towards the commercial idea.

Next in importance is the prospect of business ahead for the rest of the year for these commercial companies. One company completed and shipped over 125 ships in April, and another 98. These were of the open two- and three-place type and both concerns are behind on their orders. The same is true of other makers of ships in the same class on a somewhat smaller scale.

In the closed-cabin 200 h.p. class, these makers are making 20 or more ships per month; are behind on orders and are prevented from further expansion by engine shortage.

The production of 400 h.p. ships and the multi-engine types is, of course, much smaller, but conditions are similar.

It would seem, therefore, that the prediction that some 5,000 purely commercial airplanes will be produced in the U.S.A. in 1928 is not only possible but quite probable. Add to this the military and naval program and one has the ground-work of a real industry.

From an airplane-design standpoint, one is not qualified to criticise or even comment in detail. However, in a general way, the designs fall into a few classes.

(1) The single-bay biplane,—Which is the lineal descendant of the original Swallow. The Waco, Eaglerock, Travel Air, Laird and a number of others fall into this class. They all have approximately the same appearance, and their split-axle landing-gears are very similar in construction. Details are different, and one, at least, the E. M. Laird machine, has a fuselage made of dural tubing with clip joints and diagonal wire-strain bracing.

(2) The high wing monoplane,—Descended directly from the Wright Bellanca and, perhaps, in a way, from the earlier Loening and Gourdou-Lesseure. The outstanding examples in this class are, of course, the Fairchild and the Ryan Brougham, with the Stinson close behind. The undercarriages in these ships vary quite widely, and there are several examples of smaller machines of the same type.

(3) The big ships,—These are too well-known to need much comment. The latest Ford has a tail wheel and it is understood that this will be standard for future production. The latest Fokker Universal with Wasp Engine is a beautifully fitted up job and a fine flying ship. Next, comes the Hamilton Metalplane. This is a Wasp-engined job and appears to be very similar to the Ford in the general handling of the aluminium alloy structure.

(4) The Flivvers.—Only two of these were noticeable. One, the Driggs Dart, is a small, clean-looking biplane, using a Warren-truss interplane bracing and a 40 h.p. 3-cylinder radial engine.

(5) The Freaks.—The usual assortment of hopeless jobs. It would seem useless to call attention to them by comment and to annoy the makers by its nature.

Special comment on a few ships seems worth while where they fall outside the above classes.

(a) The Loening commercial amphibian.—This is a Wasp-engined ship following along the lines of the military type, but having a closed cabin finely fitted and designed for passenger comfort.

(b) The Ireland amphibian.—Simply a flying-boat with tractable wheels. There was a Vickers first. It is well bu and would appear to have a field.

(c) The Bellanca.—Quite similar to the Wright Bellan but with a rather freakish undercarriage. If it works, should have a low parasite factor.

(d) The Buhl Cabin Biplane.—There is nothing new ab this, but it has a very nice welded-steel fuselage, and undercarriage is exceptionally well designed to take bra torque.

(e) The Vought Corsair.—This is an example of how an design has been maintained in production by splendid c struction and detail improvement. Probably the best ol gear lay-out in the show. Also the best brake hook-up. T hook-up, constructed entirely of rods, is much more effici than the cable type.

(f) The Cessna.—A pure cantilever high-wing cabin mo plane in the 200 h.p. class. Looks too light to be safe, one was assured that the stress analysis had been competen done, so that appearances may be deceptive. The cabin little head-room, being rather like a modern car, so it wo probably not be very comfortable for long trips. Howev the high speed is 145 m.p.h. so that trips would be short

Turning to details of construction. The split-axle la ing gear was used on practically all ships. Brakes are fitt as standard equipment on all the larger jobs and may obtained at added cost. On most of the smaller ones, bra controls are nearly all of the individual pedal type, giving high degree of control on the ground. The pedal-gears operation showed considerable variation and much ingenui Oleo-gears are fitted to practically all the higher-priced shi and rubber on the lower-priced planes still holds a lead.

All makers are studying the oleo-gear and its wider ad tion is only a matter of cost of construction. Many sta lisers were fitted with a quick-acting gear having four or f positions instead of the slower military type with its mic meter adjustment.

The engine division was most interesting because of necessity for a development to take the place of the Curt OX-5, and 180 Hispano war-surplus engine.

Wrights showed their standard jobs, but one was advi that there will soon be a new series of 5, 7, and 9-cylin engines, the latter being of 300 h.p. with smaller cylind than the present Whirlwind. There is also the possibility a 3-cylinder engine in the same series.

Pratt and Whitney showed their standard line, which having an increasing vogue in commercial work. One not learn that they are preparing to produce anything small

Packard showed their full line of water-cooled engin including the 1,200 h.p. X type. These seem to be pur military motors, and there was no example mounted in military plane.

Curtiss showed pictures of their two-row radial, no engines.

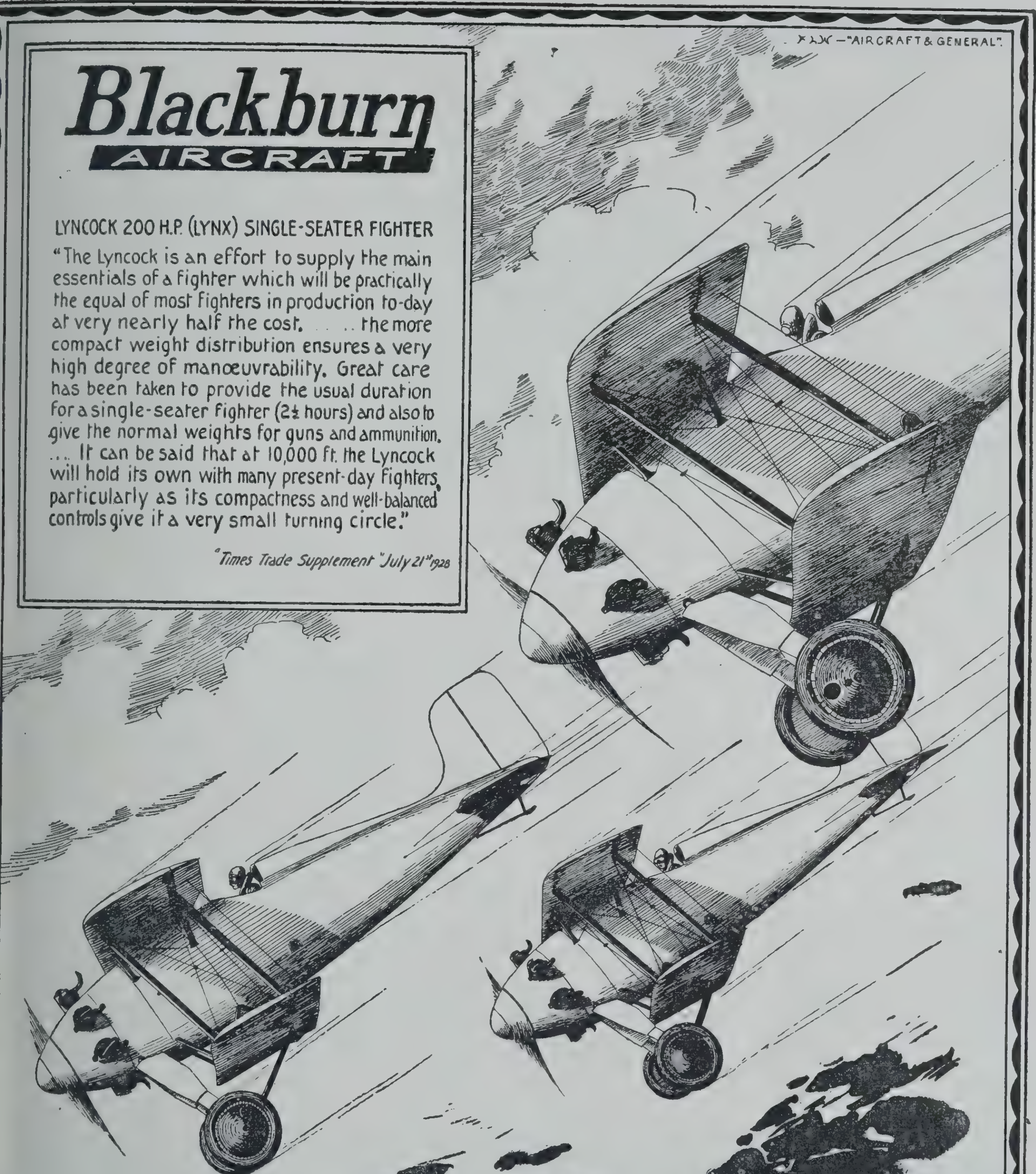
The new-comers are mainly radial jobs, though there w two examples of vertical air-cooled fours.

The Warner radial, of approximately 120 h.p., seems to ha much promise, though not much could be learned about

The Le-Blond in 3, 5, and 7 cylinders will probably ma its mark if there is a demand for an engine of this si 90 h.p. in the 7-cylinder. Mr. R. K. LeBlond is a w known manufacturer of machine-tools so that the engine sure to be well built.

The Ryan-Siemens radial is just starting and is being ma from the designs of the German Siemens-Halske. The i ported engine is highly praised so that the R.S. devel ment has a good start.

THE LATEST COMBINATION.—A Fairchild F-C2 four-seat cabin monoplane fitted with the new 180 h.p. Curtiss Challenger six-cylinder radial air-cooled engine.



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"Times Trade Supplement" July 21st 1928

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A7

The two 4-cylinder air-cooled jobs were designed to take the place of the OX-5. Unfortunately, one did not have the time to go over them with any care, therefore comment is withheld.

Surrounding the planes and engines was the usual list of accessories,—magnetos, bearings, castings, wheels, tyres, etc., not to mention the Airport Engineers who are supplying a real need. The City Committees on Airports are finding it well-nigh impossible to select proper sites on account of politics and real estate people. Hence the Airport Engineer, who works secretly until he has covered all the possible sites, and then makes his report. He must be unbiassed for the sake of his future business.

Summarising: The Show was a really commercial one and opened the eyes of Detroit, at least, to a new industry. The majority of the planes fell into two main classes.

There was no evidence of any big advancement in designs. Unfortunately, Mr. F. Handley Page's slots were conspicuous by their absence, though the gentleman himself was there.

The split landing carriage is established and the oleo gear is coming.

Brakes will be standard equipment on practically all ships within a year. Even the Loening Amphibian is trying them, though in this case the result is problematic.

Engines are predominantly radial.

A new industry is under way, for the American financial world is beginning to take a monetary interest in it.

Some of the military contractors will wish they had turned commercial sooner. All of them are thinking hard.

AN AMERICAN AIRCRAFT SHOW.

An invitation has been received from the United States Government for the participation of the British Empire in an International Conference on Civil Aviation which is to be held at Washington on Dec. 12, 13, and 14 next, and an International Aeronautical Exhibition which it is intended to hold at Chicago in the preceeding week.

Official as well as unofficial representation at the Conference is invited, and the Air Ministry will, if possible, send a delegate. Unofficial delegates representing the aircraft industry, operating companies, scientific laboratories and all branches of commercial aviation are specially mentioned in the invitation. Delegates are asked to prepare papers on some phase of aviation development and the hope is expressed that these papers may be received in Washington not later than Oct. 1 next, in order that they may be printed for distribution at the meeting. The papers will not be read but an opportunity for discussion will be afforded.

Further details of both the Conference and the Exhibition will be forwarded by the United States Government when more definite plans have been agreed upon.

In the meantime the United States Government have asked for an early reply to the invitation, and the Air Ministry will be glad to have early advice of the intention of firms and individuals in this country to take part.

Correspondence should be sent to:—The Director of Civil Aviation (C.A.3), Air Ministry, Gwydyr House, Whitehall, S.W.1.

[There seems little probability that British aircraft will be seen at Chicago, except those built in Canada. The expense of sending machines from England and the remote chances of business resulting is a good enough reason, seeing that our manufacturers do not exhibit near home when business is probable. But there are hopes that some of our scientists may go to America and talk, thus occupying the attention of our competitors in the States, while we here relieved of their presence, get along with the job of producing machines which fly.—C. G. G.]

SALE RESULTS OF THE MONTREAL SHOW

As the result of the Montreal Aero Show, a good man sales of aircraft are reported, including a number to privat owners. Seven such sales are known, including four b Canadian Vickers, a D.H. Moth by De Havilland Aircraf of Canada Ltd., to Mr. Mickeborough, a Travel Air and Swallow biplane, the two last being sold by the Canadia agents of the American Travel Air and Swallow companies.

A third D.H. Moth was purchased by the Toronto Ligh Aeroplane Club immediately after the exhibition.

THE PROPOSED LIVERPOOL—BELFAST SERVICE.

During the Liverpool Civic Week (Sept. 22 to 29) on of the Short Calcutta flying-boats belonging to Imperia Airways is to give a demonstration from Liverpool.

On Saturday and Sunday, Sept. 22 and 23, the machin will give passenger flights from Liverpool along the coast o Cheshire and Lancashire.

From Monday, Sept. 24, to Saturday, Sept. 29, a dail return service between Liverpool and Belfast will be run The machine will leave Liverpool at 10.00 hours, reach Belfast at about 11.45 hours, leave Belfast at 15.00 hours, an return to Liverpool about 16.45 hours.

Hopes are expressed that this service will lead eventuall to a regular seaplane service between these two ports.

The following letter has been received:—

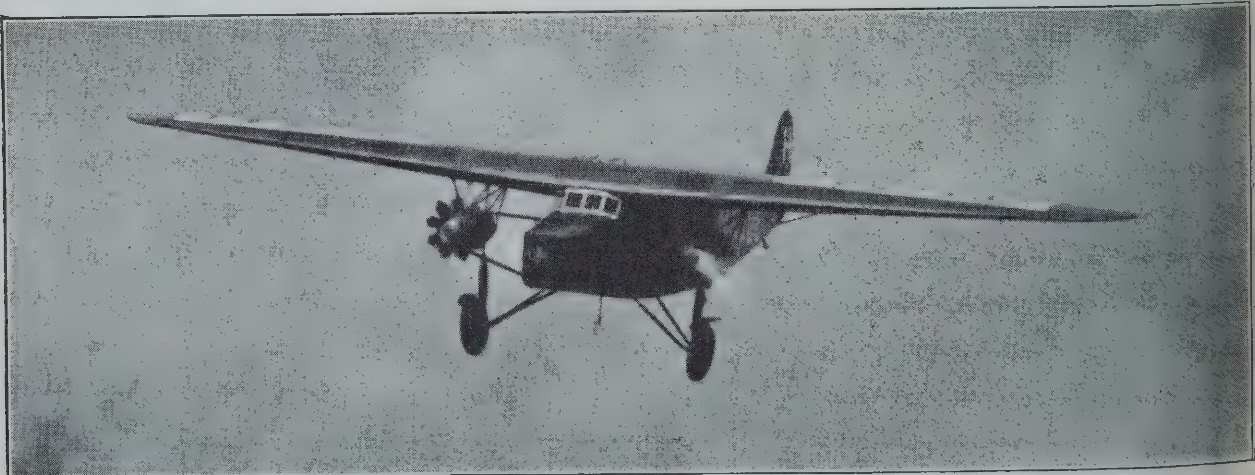
Sir,—With reference to Mr. Preston's letter on the subject of th Belfast—Liverpool Air Line,—as one who has had considerable experience of operations on this route I should like to point out tha it is entirely owing to lack of Ulsterian support that the air line i non-existent.

There is no doubt that aerial communication between Norther Ireland and England is of the greatest importance to their trade an their banks. The latter would save enormous sums in interest an yet they expect the London daily newspapers to stand all th expense, and this they are prepared to do to the extent of on return trip per day. Unfortunately this is not sufficiently profitabl or at least there is not sufficient income to cover overhead expend ture. But it is not far short, and if Ulster were prepared to subsidis a second trip per day until such a time as a demand for accommodation by passengers or goods were greater than the supply, there i no doubt in my mind that at least 75 per cent. efficiency could b profitably maintained, given proper landing bases at intervals alon the route together with meteorological stations and means of inte communication.

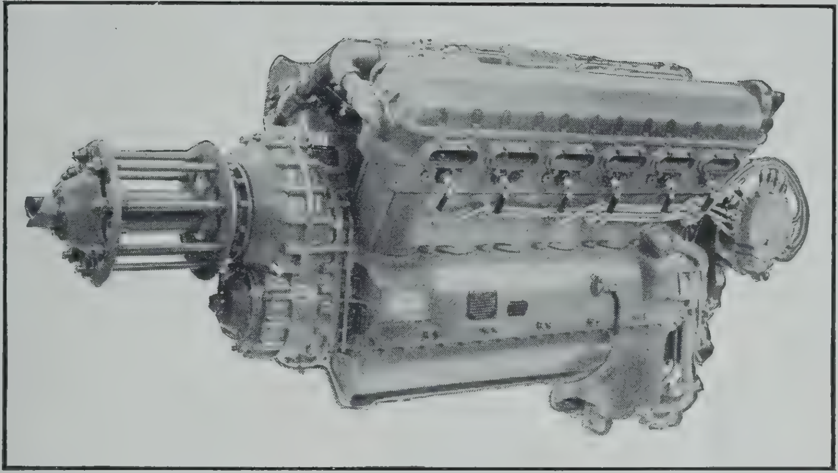
It is unjust to decry past experiments where operations were carrie forward with insufficient capital, no forced landing grounds, ba aerodromes, delayed weather reports and no direct means of communication from point to point. At the same time it is also unjus of Ulster to expect England to pay for these facilities when the gai is all on their side. However the Ministry did their very best i the past and I am sure would do so again, if Ulster or its bank would put up sufficient capital to cover cost of operation for a ter of years.

(Signed) V. N. Dickinson.

Nevertheless, having had several decades of experience Northern Ireland, one still refuses to believe that the weathe in the Irish Sea would permit a service regular enough be worth while. Apart from that, given the existing highl efficient boat service, one does not believe that there a enough mails, passengers, or freight needing air transpo to allow an air line to pay. One would like to know whethe General Groves or Messrs. Preston or Dickinson can provi any figures for either mails or passengers to justify the claims.—C. G. G.



THE NEW FLYING DUTCHMAN.—The Fokker F.VIII (two 450 h.p. Gnôme-Rhône Jupiter engines), which type is now being used on the services operated by K.L.M. in place of the F.VII with the single Jupiter.



ROLLS-ROYCE
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The new Rolls-Royce 'F' aero engine, designed by Mr F. Henry Royce, has successfully passed the British Air Ministry's 100-hour test at the first attempt. This noteworthy achievement is a further tribute to the reliability of Rolls-Royce aero engines for which, since their inception, they have always been renowned.
Full particulars on application.

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ELEMENTS FOR ENGINEERS.

"The Elements of Aviation: An Explanation of Flight Principles." 193 pages, 24 illustrations, index. By Colonel Virginius Evans Clark. The Ronald Press Co., New York. $3.00,—or from THE AEROPLANE Book Dept.

One of the most remarkable personalities in American aviation is Colonel Virginius Clark. He began his career as an officer in the U.S. Navy. Thence he transferred to the Regular Army and when Aviation developed, proceeded to become a technical officer of considerable importance. A year or two after the War he decided to enter the commercial side of aviation together with a colleague in the U.S. Army Bureau of Aeronautics, Major R. H. Fleet, and formed the Consolidated Aircraft Corporation which, in 1924, secured about the biggest contract for training machines for the U.S. Army and Navy which has ever been placed, at any rate outside of the War period. One well remembers Colonel Clark's grief at the placing of this contract, for he, whose ambitions lay in the direction of producing something unusual in the way of fighting machines, had deliberately laid himself out to produce the most ordinary and commonplace training machine which he could imagine, rather more by way of a joke than anything else. And so he found himself compelled to make quite considerable profits out of the production of a machine which did not interest him in the least.

Such is ever the fate of the true artist. But this sad happening deserves to be placed on record for it shows that Colonel Clark is a practical aircraft constructor besides being a high-class scientist.

When his book arrived one had hoped to be able to review it oneself. But after looking inside it one saw that on very many of its pages there were rows of figures and signs for square roots and cube roots, and the mysterious words "cos" and "sin," and references to logarithms. Consequently, as anything more than three figures in a row either horizontally or vertically put one completely out of control, one was compelled to hand over the actual reviewing of the book to one who is properly qualified to deal with it.

The writer of the following review is himself a competent and successful designer of aircraft. Judging by his criticisms the book is not intended to explain the elements of flying to the ordinary schoolboy, or even to the average successful business man, who wants a simple explanation of how aeroplanes fly. It appears to provide rather, for the benefit of properly educated and trained engineers, a thoroughly comprehensive explanation both scientific and mathematical of the operation of aerofoils.—C. G. G.

(*Here follows the review.*)

Colonel Clark was Chief Aeronautical Engineer of the U.S. Army for several years, but he is better known in Europe for his successful aerofoil designs. It will be recalled that Capt. Lindbergh's *Spirit of St. Louis* was fitted with aerofoils of Colonel Clark's Y Section. Under these circumstances it is not surprising that quite a large portion of this book is devoted to aerofoil considerations. This information is highly instructive and, coming from so eminent an authority, it should be read by all aircraft designers.

It is unfortunate that the aerofoil Lift and Drag Coefficients are designated *Lc* and *Dc* respectively, because these symbols are used in the earlier N.A.C.A. Reports and apply to the old coefficients. The absolute system of coefficients, as used in this book, are twice the value of the old coefficients and this is apt to confuse the student.

The Aerofoil Drag Characteristics are presented in mode style. Induced and Profile Drag coefficients are show plotted and an example is fully worked out to explain the application.

Colonel Clark has written a complete chapter on Stabili without resorting to the Greek Alphabet. This will plea the practical engineer. The chapters dealing wi Manœuvrability and Control are particularly well writt and, after reading such paragraphs as those dealing wi "The Spin" and "Flat Spin," one can appreciate t author's genius for explaining complicated evolutions in simple, yet clear manner.

The Nomenclature of Aeronautical and Mechanical Term occupying 40 pages, could well have been omitted. Th Nomenclature is an abridged edition of N.A.C.A. Repo No. 240 and a reference to this report would not only ha conserved the space for more valuable material, but wou have placed the reader in touch with a more comprehe sive list of terms.

There are a series of useful questions in the back of th book but the answers have not been included and th student is left without any check on his results.

This book has been written with the object of explaini the Principles of Flight and discussing elementary desi considerations in a simple manner without resorting to co plex mathematics. In this respect the work admirably serv the purpose for which it was written. The book is well refe enced and illustrated, and it can be confidentially reco mended to students, junior members of the aircraft indust and to those persons who already have some engineeri knowledge but require an introduction to the special proble connected with Aviation.—G. H. D.

AMERICAN AERO-ENGINES.

"Dyke's Aircraft Engine Instructor." By A. L. Dyk Published by the Goodheart-Willcox Co. Inc., Chicag and S. G. Gillam, Bath Road, Cowes, I.O.W. Pri $5, U.S.A., or 22s. 6d. net, THE AEROPLANE Book Dept.

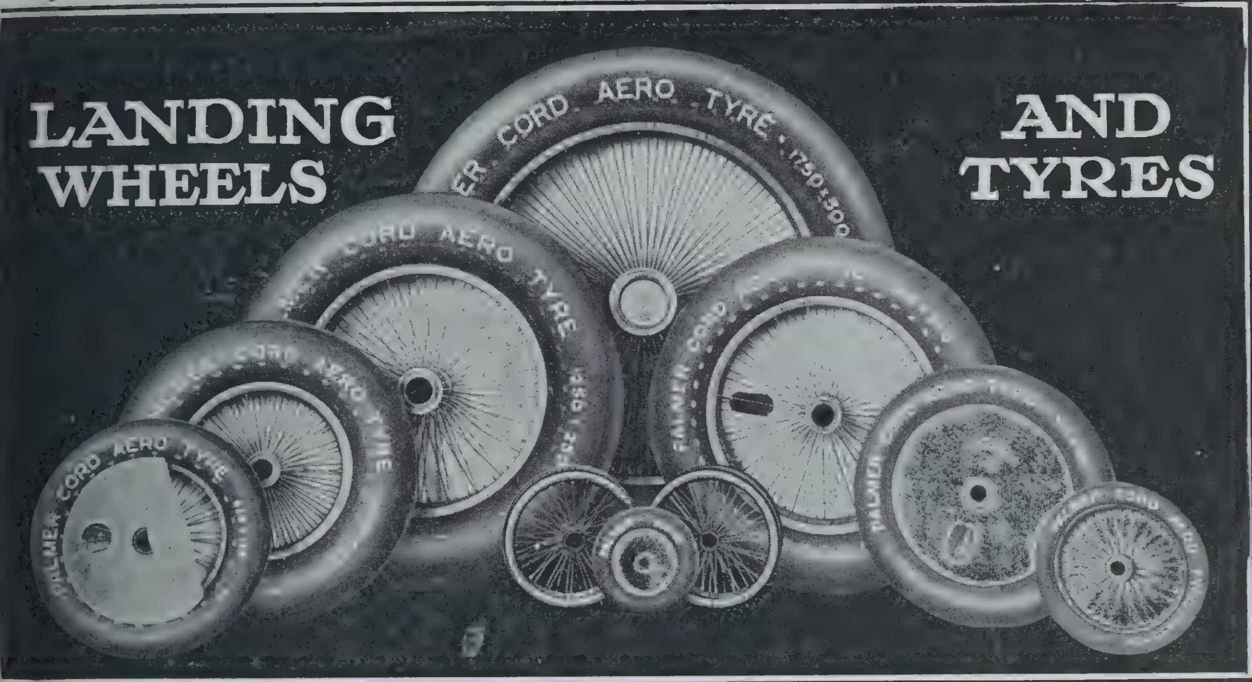
According to the prospectus which accompanies the revi copy of this book, it is meant to be a guide to the und standing of aero engines in general. In fact, it conta four and a-half pages of a very elementary exposition of t operations of the ordinary four-stroke-cycle internal-co bustion engine, and thereafter proceeds to a series of ve complete descriptions of a number of modern American ae engines, giving in each case the maker's instructions care and maintenance.

These engines are the Wright Whirlwind, the Pratt a Whitney Wasp, the Curtiss D.12 series, the Packard 2A-15 2A-2500, and 3A-2500 types, and The Fairchild Caminez gine. In addition, specifications and descriptions of a nu ber of foreign engines used in the U.S. are given, with details as to care and maintenance, followed by a sh section in which the Curtiss OX engine, the 150 h.p., h.p. and 300 h.p. Hispano-Suiza engines, the Mono-Gnô and Liberty are fairly fully described.

This section is followed by a series of descriptions magnetos, carburettors, starters, generators, and the li There is then a section dealing with aircraft instrume and controls, and the work ends with a section on misc laneous aircraft information, which constitutes a gu to the American equivalent of Air Navigation Regulatio and covers the licensing, etc., requirements enforced by Bureau of Commerce.

ANGLO-DUTCH.—A Fokker S.III training biplane fitted with the 130 h.p. Bristol Lucifer engine. This machine has carried out full flight tests and has put up a very creditable performance.

PALMER



STANDARD SIZES.

Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore	
		m/m	m/m	m/m
75×55	168	111.12	25.4	Central
00×60	16	111.12	25.4	Central
50×60	30	89.	31.75	Central
"	172	130.	38.09	Central
75×60	21	160.	28.	Central
"	180	150.	38.09	104/46
"	186	120.	34.92	Central
"	90	150.	38.09	Central
50×65	78	178.	44.45	132/46
"	79	178.	44.45	Central
"	100	178.	38.09	132/46
"	101	178.	31.75	132/46
00×75	21	160.	28.	Central
"	180	150.	38.09	104/46
"	186	120.	34.92	Central
"	190	150.	38.09	Central
00×75	78	178.	44.45	132/46
"	79	178.	44.45	Central
"	100	178.	38.09	132/46
"	101	178.	31.75	132/46
0×100	77	178.	44.45	132/46
"	92	185.	55.	135/50
"	95	185.	55.	Central
"	99	178.	38.89	132/46
700×100	112	150.	38.09	Central
"	176	178.	44.45	Central
"	179	178.	55.	132/46
650×125	119	178.	55.	132/46
"	147	178.	55.	Central
"	188	120.	34.92	Central
750×125	77	178.	44.45	132/46
"	92	185.	55.	135/50
"	95	185.	55.	Central
"	99	178.	38.89	132/46
"	112	150.	38.09	Central
"	176	178.	44.45	Central
"	179	178.	55.	132/46
800×150	161*	185.	55.	135/50
"	162*	185.	55.	Central
"	163*	185.	66.67	135/50
"	169†	185.	55.	135/50
"	177	185.	55.	135/50
"	183	185.	55.	Central
"	211*	185.	60.32	135/50
1000×150	167	185.	55.	125/60
"	174	250.	80.	Central
"	182	185.	55.	Central
"	187	220.	66.67	Central
"	201	185.	60.32	125/60
1000×150	210	185.	60.32	Central
1000×180	148	220.	80.	Central
"	149	185.	55.	Central
"	155	220.	66.67	Central
"	166	185.	55.	125/60
900×200	107	185.	55.	Central
"	108	185.	55.	125/60
"	128	220.	66.67	Central
"	137	250.	80.	Central
"	157	185.	80.	Central
"	202	185.	60.32	Central
1100×220	134	220.	66.67	Central
"	136	250.	80.	Central
975×225	192	185.	60.32	Central
"	194	185.	55.	125/60
1250×250	133	250.	80.	Central
"	154	304.8	101.6	Central
1500×300	115	304.8	101.6	Central
"	126	304.8	152.4	Central
1750×300	189	400.	152.4	Central
"	191	350.	150.3	Central
1750×350	193	400.	125.	Central

eels Nos. 161, 162, 163 and 211 are of stronger type than the other wheels for 800 × 150 tyres. *†Wheel No. 169 is fitted with Ball Bearings.*
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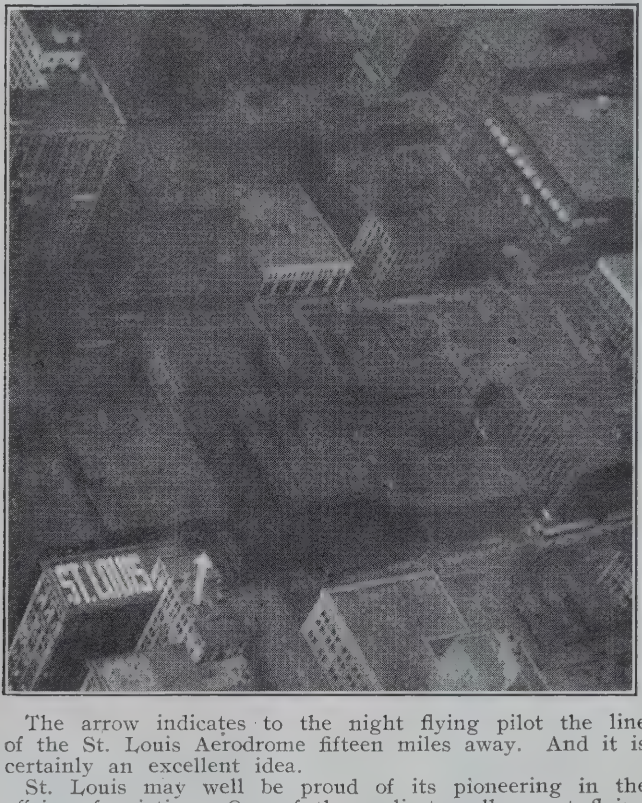
As an appendix, the "Nomenclature for Aeronautics" issued by the U.S. National Advisory Committee for Aeronautics is reprinted.

The work is thus essentially an American Ground Engineer's handbook, containing in a compact form information which in this country is contained in the handbooks dealing with specific types of engines issued by the manufacturers, together with a considerable amount of useful data of a less specialised type. It has but a limited practical value in this country, but gives a good deal of interesting information concerning American practice in the design and maintenance of engines and their accessories. So it should be very useful to any British ground engineer, pilot, or the like, who may be meditating emigration to America. It is very fully illustrated and excellently printed.

SHOWING THE WAY.

Mr. L. O. Honig, of Boatmen's Bank Building, St. Louis, U.S.A., kindly sends an aerial photograph of the aforesaid building, which claims to be St. Louis' finest office building, showing the illuminated sign on the roof which is claimed to be the first electric-light air-line marker to be installed on the roof of an office building in the United States. It is probably the first in the World.



The arrow indicates to the night flying pilot the line of the St. Louis Aerodrome fifteen miles away. And it is certainly an excellent idea.

St. Louis may well be proud of its pioneering in the affairs of aviation. One of the earliest really great flying meets in the States was held there. Citizens of St. Louis financed Charles Lindbergh in his great flight. And now St. Louis shows us how every town may, and ought to, serve the wandering aviator.

When St. Louis gets a landing field in the City instead of fifteen miles out, and when it has a flying-boat service landing passengers on the water-front it may justly claim a place in the front rank of airminded cities.

AN EMBRYO AIR MAP.

Cook, Hammond and Kell Ltd., cartographers and lithographers, have just produced, under the auspices of the Air League of the British Empire, a map of Great Britain, together with parts of Ireland and France, to a scale of ten miles to the inch, which ought to be quite useful to cross-country aviators. The map is printed in three colours, showing rivers in blue, railway, roads and towns in black, and all existing permanent aerodromes in red. In addition danger areas and prohibited areas are clearly shown, as are the positions of air pilotage marks, aerial lighthouses and customs stations.

The size of the map is 64 inches by 40 inches. Printed on thick litho paper the price is 10s. 6d. Mounted to roll with roller and ledge for hanging, the price is 15s. 6d. Mounted to fold in sections to fit the standard size map-case (16¼ x 13¾), the price is 21s., and postage in each case is 1s. 6d. extra.

The map is on rather too small a scale to be used in actual cross-country flying. Outstanding landmarks naturally cannot be shown, and even important lakes and characteristic bends in rivers cannot be shown up on such scale. Moreover, although the roads which appear in existing ordnance survey maps produced about twenty year ago are shown quite clearly, the new arterial roads whic are entirely altering the landscape of England, especiall when seen from above, do not appear at all.

A map produced for the benefit of cross-country flyer should, in fact, be produced by cross-country fliers and shoul show only those features of the landscape which can serv as landmarks. The features which stand out most whe one is on the ground are hardly visible from the air and thos which are most striking when in the air are as often as n invisible from any road. Nevertheless, this map ought t be very useful for cross-country fliers to hang up in a ha or an aeroplane shed so that when laying out a cross-countr course the pilot can see at a glance the aerodromes whic will be nearest to his line of flight.

Copies can be obtained from THE AEROPLANE Book Department, Cannon House, Pilgrim Street, London, E.C.4.

IN COLD STORAGE.

Mr. Bert Hassell and Mr. Parker Cramer, who have bee missing since Aug. 19, the day after they left Cochrane Ontario, for Greenland in an attempt to fly from Rockford Ill., to Stockholm by way of the North Atlantic, have bee found safe and well in the wilds of Greenland.

It appears that they were blown off their course by north-west storm off Cape Chidley, the extreme northerl point of Labrador, which resulted in their striking th Greenland coast more to the south than they expected They mistook the Frederikshaab ice-arm for the Sukkertoppen ice-arm, made a long detour north to search for th observatory at Mount Evans, their proposed landing place and ran out of petrol. Since then they have been travellin on foot, living on a pemmican ration of 8 ozs. per day They finally reached the shore of a fiord opposite Moun Evans, where they lit fires. The smoke was sighted b Eskimos, who informed the observatory. Motor-boats wer despatched across the fjord, and brought the two men t Mount Evans. They were in good health and none th worse for their adventure. The machine was undamaged.

This flight was financed by the town of Rockford, Illinois and when news was received that the two pilots were saf whistles were blown, bells were rung, special editions o the newspapers were issued, and the entire town gave itsel over to wild jubilation.

The aviators are to be congratulated on their return t civilisation, but there seems no good reason why the should ever have left it.

A CENTRAL EUROPEAN MILITARY COMPETITION.

The fourth annual "*Concours de la Petite Entente*" wa held at Prague on Aug. 8, 9 and 10. This competition is fo two-seat reconnaissance aircraft belonging to the militar air forces of Yugo-Slavia, Rumania, Czechoslovakia an Poland. All competing aircraft had to make an average o more than 200 km.p.h. over a 100 km. course before bein allowed to compete in the competition.

The remainder of the competition called for a speed tes over the course—Prague—Cracow—Warsaw—Lemberg—Brat slava—Bucharest—Belgrade—Zagreb—Brno—Prague, a tota distance of over 3,100 kms. (1,930 miles), and a height test t 5,000 m., the winner being decided by the formula: averag speed multiplied by military load carried divided by th time taken to climb to 5,000 m.

Twenty-three entries were received, six each from Yugo Slavia, Czechoslovakia and Poland and five from Rumania.

The final classification was as follows: 1, Capt. Kall (Czechoslovakia), Letov 16 (Jupiter VIII): 6,962 pts.; 2, Cap Burduloi (Rumania), Breguet XIX (Hispano-Suiza), 5,92 pts.; 3, Capt. Kleps (Czechoslovakia), Letov 16 (Hispano Suiza), 5,360 pts.; 4, Lieut. Stefanescu (Rumania), Potez 2 (Hispano-Suiza), 4,828 pts.; 5, Major Radovic (Yugo-Slavia Breguet XIX (Hispano-Suiza), 4,728 pts.; 6, Capt. Ceans (Rumania), Potez 25 (Hispano-Suiza), 4,510 pts.; 7, Cap Iliesco (Rumania), Potez 25 (Hispano-Suiza), 3,915 pts.; 8 Major Makowski (Poland), Lublin R-VIII (Lorraine-Dietrich 3,879 pts.; 9, Capt. Zeleny (Czechoslovakia), Avia BH.2 (Jupiter VIII), 3,218 pts.; 10, Capt. Popescu (Rumania), Breguet XIX (Hispano-Suiza), 2,871 pts.

The trophy given by Poland was won by Rumania, whos team scored a total of 22,052 pts., Czechoslovakia bein second with 15,534 pts.

THE KLEMM MONOPLANE IN THE U.S.A

A company known as the Aeromarine Klemm Corporatio has been formed in Keyport, N.J., to manufacture the Ge man Klemm light monoplane in the United States.

The President of the new Corporation is Mr. Inglis M Uppercu, who was originally President of the old Aeromarin Plane and Motor Co., which company manufactured larg quantities of aero-engines and aircraft during the War.

The efforts of the Société Lorraine ensure steady progress in the value and reliability of Aviation.

Over 5,000 engines are in use all over the World. They are fitted to all types of aircraft, having made themselves indispensable by their regularity of operation. Their use in service has confirmed the brilliant reputation which they have obtained in the number of big flights made during recent years.

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THE FLYING CLUBS.

The London Aeroplane Club.

[Sec. Harold E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending Sept. 2.

Flying Time 74 hr. 15 min. *Instruction* 49 hr. 25 min. *Soloists* 24 hr. 50 min. *Instruction.*—Messrs. W. W. Briscoe, J. W. Boutwood, A. D. Blumlein, J. W. Radbone, J. D. M. Robinson, R. K. Koratkar, C. J. Pool, G. F. Roberts, J. R. Evans, J. Harrison, A. J. Milier, A. Courtauld, L. C. Gibbens, J. W. Chalmers, C. W. Bonniksen, G. Charles, D. Prentice, L. R. Gaywood, G. N. Larden, E. Puddy, Mrs B. Thatcher, Lord Malcolm Douglas-Hamilton. *Soloists.*—Messrs. P. W. Hoare, T. Elder Hearne, B. B. Tucker, E. A. Lingard, E. R. Andrews, K. V. Wright, P. A. Wills, W. Hart, W. L. M. O'Connor, C. E. Murrell, O. J. Tapper, G. H. Craig, G. N. Larden, Lieut. J. Robinson, Major K. M. Beaumont, A. F. Burns, R. Ward, W. T. Hay, G. Robson, C. W. Bonniksen, Lord M. Douglas-Hamilton.

Capt. R. S. Rattray passed the tests for his Aviator's Certificate on Aug. 28.

Mr. L. J. Mitchell has passed the necessary tests and been granted a "B" Licence.

The Lancashire Aero Club.

[Sec.: F. W. Atherton, Woodford Aerodrome, Cheshire.]

Report for week ending Sept. 1.

Flying Time 26 hr. 5 min. *Instruction* 8 hr. 35 min. *Soloists* 7 hr. 30 min. *Passenger flights* 8 hr. 30 min. *Tests* 1 hr. 30 min. *Instruction.—With Mr. Brown*—Messrs. Johnson, Cohen, Eckersley, Weale, Ashworth, Davies, R. G., Serck, Faulkner, Barlow, Taylor, S., Miss Baerlein. *With Mr. Cantrill*—Mr. Faulkner. *With Mr. Scholes*—Messrs. Ashworth, Cohen, Barlow. *With Mr. Todd*—Messrs. Serck, Weale, Taylor, S., Garner, Davies, D. B., Ashworth. *Soloists (under instruction).*—Messrs. Benson, Serck, Weale. *Pilots.*—Messrs. Tweedale, Michelson, Hall, Mills, Agar, Cohen, Meads, Nelson, Leeming. *Passengers.*—19.

Mr. Benson made a successful height test under rather difficult conditions. Mr. H. C. Todd is now established as Aerodrome Manager and Chief Instructor. Members are asked to see notices in the Club House for particulars of a competition to be held on Oct. 6. We were very glad to welcome Mr. Jones of the Scottish Club on Sunday. This inter-Club visiting seems to be something to encourage.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending Sept. 2.

Flying Time 27 hr. 35 min. *Instruction* 10 hr. 50 min. *"A" Pilots* 10 hr. 30 min. *Soloists* 10 min. *Passengers* 4 hr. 50 min. *Tests* 1 hr. 15 min. *Instruction.—With Mr. J. D. Parkinson*—Miss Yendall, Messrs. Irving, Sadler, Wilkes, Middleton, Alton, Hayton, McLean, Temple, Walker, Miss Slade. *"A" Pilots.*—Mrs. Heslop, Miss Leathart, Messrs. Irving, Wilson, Runciman, W. B. Ellis, Tur bull, C. Thompson, Percy, Todd, Dr. Dixon, Dr. Alderson. *Solists.* Miss Slade.

Mrs. Irving had her first passenger trip in a Moth. She e pressed her delight and apparently the time is not far distant wh Mr. J. D. Irving will become a private owner.

Mr. George Formby and Co. paid us a visit last Tuesday, and t Co. had 22 joy-rides.

A forced landing competition was staged on Sunday in whi a dozen members competed, The honours went to Mr. Irving aft having tied with Mr. C. Thompson. Both landed in the circle.

Mr. Walters of Imperial Airways called this week on an Avian his way to Scotland.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Report for week ending Sept. 1.

Flying Time 41 hr. 22 min. *Instruction* 22 hr. 30 min. *Solois* 14 hr. *Passengers* 3 hr. 40 min. *Tests* 1 hr. 12 min. *Instruction. With Flt. Lt. Rose, D.F.C., and Mr. W. H. Sutcliffe.*—Messrs. Morr R. L. Jackson, D. N. Khatri, C. T. Davis, W. Smith, J. W. Brigg T. H. Drury, L. V. Mann, J. Williamson, E. D. Wynn, O. Richards, R. G. Welch, J. Fitzgerald, Blakeway, S. G. Hall, J. Morton, A. B. Gibbons, J. A. Ridsdale, J. A. V. Cook, J. W. Astle R. B. Laidlaw, H. Beamish, Mrs. Leigh Fermor, Capt. J. C. Chayt Dr. W. G. Tilleke. *Soloists.*—Messrs. E. P. Lane, J. R. Guthri E. R. King, R. L. Baxter, J. Rowley, J. B. Briggs, R. L. Jackso H. J. Willis, E. L. Hulme, G. Robson, G. C. Jones, O. L. Richar S. H. Smith, R. G. Welch, R. D. Bednall, W. Swann, H. Latte S. G. Hall, J. Cobb, E. D. Wynn, A. B. Gibbons, M. A. Murtag R. B. Laidlaw, Capt. J. C. Chaytor. *Passengers.*—10.

Messrs. R. G. Welch and R. B. Laidlaw made first solos.

Total flying time for August was 131 hr. 13 min., 334 Flights.

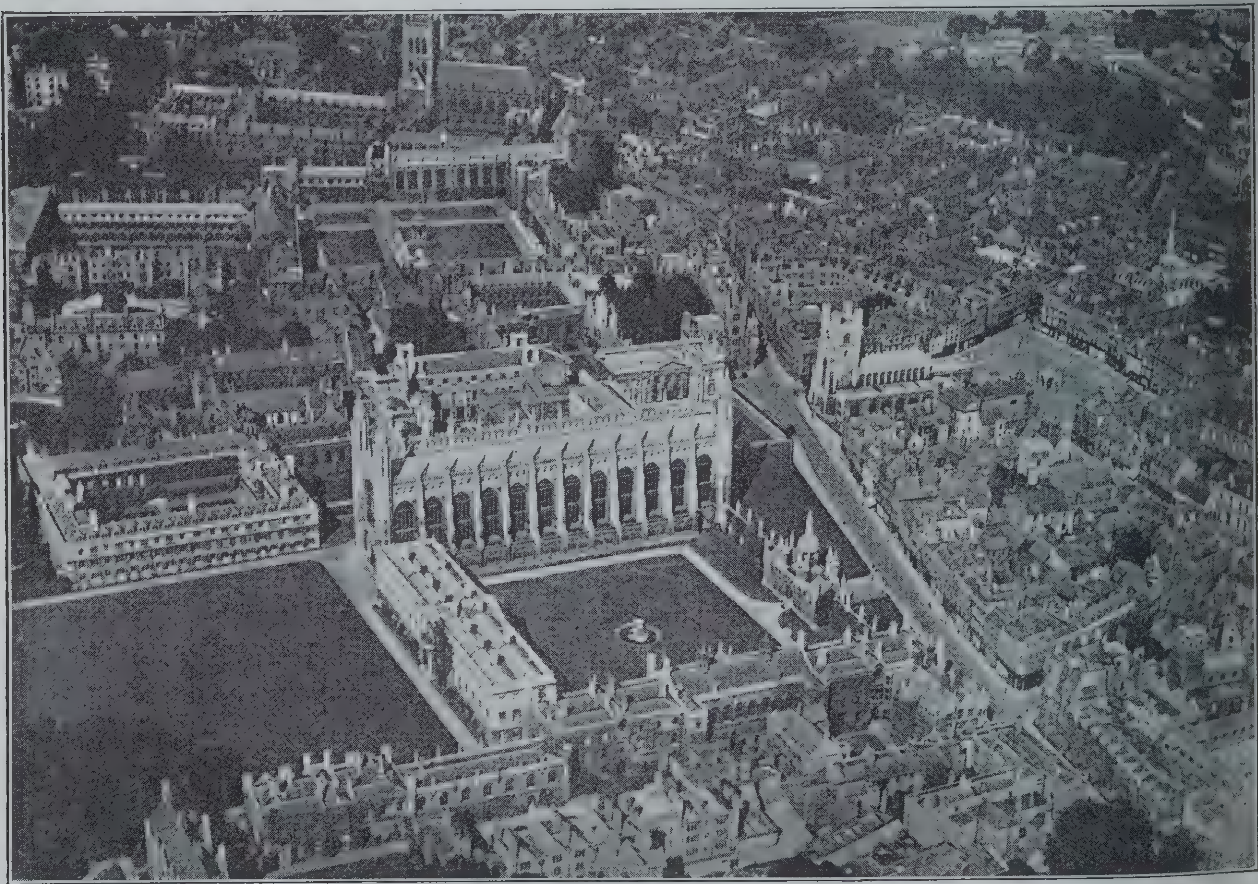
On Wednesday Flt. Lt. Rose flew LT to Stag Lane for annual ov haul for renewal of the C. of A.

The Hampshire Aeroplane Club.

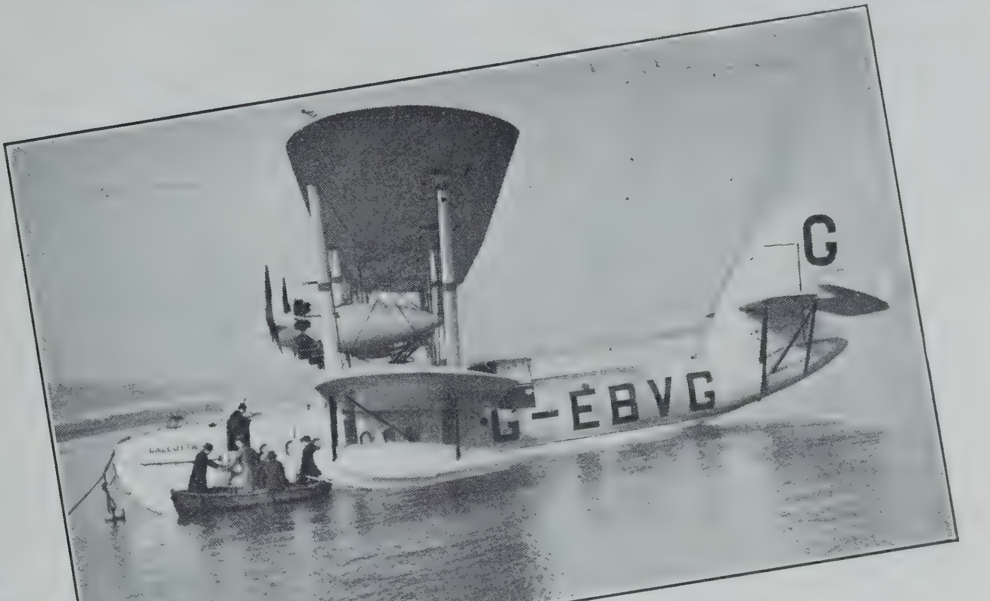
[Sec.: H. J. Harrington, Hamble Aerodrome, Southampton.]

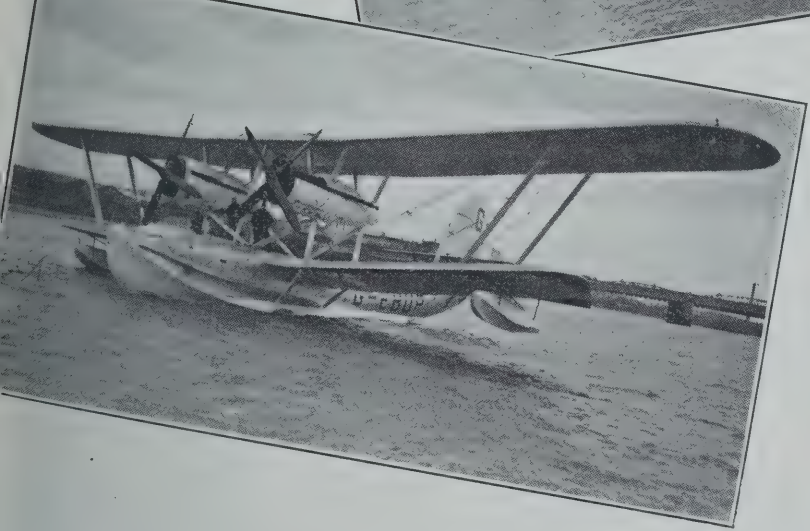
Report for week ending Aug. 31.

Flying Time 54 hr. 50 min. *Instruction* 20 hr. 45 min. *"A Pilots* 19 hr. 5 min. *Soloists* 9 hr. 20 min. *Passenger Flights* hr. 20 min. *Tests* 1 hr. 20 min. *Instruction.—With Flt. Lt. Swof and Mr. W. H. Dudley*—Mr. Makgill, Cdr. Creswell, Lt. Oswald, M Wills, Mr. Curtiss Nuthall, Mr. Parker, Lt.-Cdr. Coveney, Mr. Go man, Mr. Berney, Mr. Cambell, Mr. Hall, Lt. Couchman, Lt. R kill, Mr. Brewster, Cdr. Hunt, Dr. Bowden, Mr Buckley, M Reuther, Mr. Cater, Mr. T. Martin, Mr. W. Martin, Mr. Rice-Hu Mr. Tobutt, Mr. Grahame Gibbs, Mr. Sturge, Miss Melvill, C Bell, Mr. Weekes, Lt. Des Graz, Mr. Richardson. *"A" Pilots.*— Heath, Mr. Wills, Lt. Oliver, Mr. Michelmore, Mr. Parker, Ca



CAMBRIDGE FROM THE AIR.—In the centre is seen King's College and its famous Chapel with King's Parad running past the front. To the left of the Chapel is Clare and above that is Trinity Hall and beyond that Trinit showing clearly the Great Court, and beyond that again is St. John's The building resembling a parish church is S John's Chapel. The tower above the right end of King's Chapel is Caius and on the other side of King's Parade is S Mary's, the University Church, and to the right of that is the Market Square. Between the right end of King's Chap and Caius the Senate can just be seen. In the bottom right corner is a bit of Corpus Christi.





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We regret to record this week an accident to our first ab-initio lady "A" Licence pilot, Miss A. B. Grace. In coming to land Miss Grace flew the Avian into a 50 ft. flagstaff which had been erected by an individual who is apparently under the impression that this pole protects his house. The Avian was completely written off but by a miracle Miss Grace was not seriously injured. On the same day as the accident one of our younger members, Mr. Cambell, made a successful first solo.

On Friday we had the pleasure of receiving Sir Sefton Brancker, who flew down in G-EDCA to meet a deputation of those residents in Hamble who are apparently under the impression, to our surprise, that we do not discourage low flying. We feel sure that everyone who understands flying will realise that the low flying complained of constitutes taking off and coming into land and that nobody is more opposed to deliberate low flying than ourselves. The opinion of the Chief Instructor and of the Secretary of some of the reports of alleged conversations that have appeared in certain daily journals is stated to be unprintable.

On Sunday last a welcome visitor was Capt. Lamplugh, who arrived on a Moth. We greeted him with effusion but we regret to say that he didn't take the hint and reduce our insurance premiums. We imagine that his opinion of those who erect abnormally high flagstaffs in the vicinity of aerodromes would be interesting.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending Sept. 2.

Flying Time 26 hr. 55 min. *Instruction.—With Mr. Young*—Messrs. H. Malcolm Smith, Mrs. Cator, C. Ransome, G. Wharton, R. Harvey, A. Kirkby, Miss Stuart Wortley, W. S. Rope, F. Rinder, C. Land. *Soloists.*—Messrs. H. Pank, E. Gough, R. Potter, N. Brett, H. Cator, G. Wharton, H. Malcolm Smith, G. F. Surtees, A. V. Harvey, A. G. Marshall, D. Corsellis, E. Varden Smith, F. Rinder, A. G. Barrett, E. Costa, R. T. Harmer, C. Lincolne Sutton, C. Gowing, H. Neave. *Passengers.*—19.

Twenty members scrambling for one machine, that's the state of affairs this week-end, and a very distracting one too. The trouble came about on Thursday, when QX had a slight argument with a telescopic ladder being wheeled across her path. Naturally resenting this she let drive with her left good and proper and laid the beastly thing out for the full count, at the same time receiving slight abrasions herself necessitating a couple of days in the casual ward. However, it's an ill wind, etc. Top overhaul being due the two jobs can be done at once.

Three more soloists this week who have all put up very good shows and should have their "A's," before the end of the month. These were Messrs. F. Rinder G. Wharton and H. Malcolm Smith. Here we should mention that particular praise is due to Mr. Malcolm Smith, who now holds the Club record for the least dual training, having "gone off" in three hours. He was quite ready after two hours, but one has to make quite sure. Certainly he is a born airman and handles his craft in great style, making just perfect landings.

On Thursday two of our members, Mrs. J. Dawson Paul and M A. V. Harvey, came over from Lowestoft and took off in ZW fly back there and get a good view of the Regatta.

On Sunday afternoon we were honoured with a visit quite u expectedly from Sir Sefton Brancker, who was staying with Maj Barker-Hahlo, of Langley Park, a member of the Club. Th brought a large party of friends, all of whom had a trip ov Norwich. Sir Sefton expressed his pleasure at the progress mad We are always glad to have the D.C.A. with us. He is such ardent supporter of the Club movement and so enthusiastic that is a decidedly encouraging visitor to talk to. When they had finish their joy flights the party had tea in the Club House.

This has been a week of thrills for on Thursday evening our M Engineer Kirkby informed us the top plane of the Moth look suspiciously like falling off. Everybody had a heart attack. rather fancy he wanted an early night because the top plane w actually attached good and hefty and the trouble proved to be slight disarrangement of the tank which he soon put right in h usual expeditious manner. However, if he tells us a machine is right, it's all right, but if he says it's not, either he's wrong the machine is. We give him full marks And he does know how repair petrol tanks that leak (Patent app. for).

The Bristol and Wessex Aeroplane Club.

[Sec.: C. F. G. Crawford, Filton Aerodrome, Bristol.]

Report for week ending Aug. 25.

Flying Time 29 hr. 5 min.

Flying hours have been reduced this week by heavy passing showe and the absence of many active members on holidays. Sound flyi was done by Messrs. T. H. Clarke and Lynas, who passed "A" te last week, and good progress was made by Messrs. Neale, Peters a R. S. Clarke.

Our temporary instructor, H. G. Travers (with his wife as p senger), took TV to Stag Lane in 60 min. early on Tuesday mornin returning by G.W.R. He fetched an apparently new machine (p senger Mr. Leaver) on Friday morning, Messrs. de Havilland havi made an excellent repaint and revarnish job in 2½ days. They c tainly understand the meaning of "service after delivery."

Report for week ending Sept. 1.

Flying Time 29 hr. 30 min. *Instruction.—With Mr. Travers*—M Miles, Messrs. Dutton, Rogers, M. M. Singh, D. B. Singh, R. Clar Putnam, Laws, Byrnes, Heaven, King. *With Mr. Culverwell*— Greenhill. *Soloists.*—Messrs. Keith-Jopp, Hall, Bathurst, Miss Mil Messrs. M. M. Singh, Neale, Lynas, Greenhill, T. H. Clarke.

We have to congratulate Miss Miles, Mr. Greenhill and Mr. M. Singh on passing the "A" Licence tests this week. Mr. Neale, w did his first solo, will not be long now before he joins the ranks licensed pilots. Mr. Travers, with Mr. Rogers as passenger, made cross-country flight on Monday to Sherborne and back.

The weather in the early days of the week was against much flyi but the last two or three days amply made up for it by being eve thing that could be desired.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadlei Suffolk.]

Report for week ending Sept. 1.

Flying Time 15 hr. 55 min. *Instruction* 11 hr. 40 min. *"A" a "B" Pilots* 30 min. *Soloists (under instruction)* 1 hr. 35 min. *P*

AN HISTORIC SIGHT.—The Wartburg, an ancient castle in the Thuringian mountains in Germany, where Marti Luther translated the Bible about 375 years ago.

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senger Flights 1 hr. 40 min. *Tests* 30 min. *Instruction.—With Mr. Lowdell*—Mrs. Young, Dr. Mildred Yate, Messrs. Welsh, Pettiward, Ogilvie, Billinton, T. Marriage, Wedd, Croydon. *Soloist (under instruction)*.—Mr. R. Pettiward. *" A " and " B " Pilots*.—Mr. R. Brown, Mr. Birt.

Bad weather has kept the flying hours down again this week. Mr. R. Pettiward carried out his first solo in a masterly manner.

ON TO HADLEIGH.—We are holding another On-To-Hadleigh Rally on Sept. 15 and shall be glad to see any members of other clubs who care to come along either by air or road.

The air display will start at 10.00 hr. and continue until dusk. So far as the visiting pilots are concerned it is hoped to make the event more of an At Home than a serious air meeting. At the same time a mild sporting flavour will be introduced by the On-To-Hadleigh Rally and the Aerial Golf Competition. By means of Aerobatics, Joy-Riding, Demonstration Flights and other features on the programme it is hoped to keep the interest of the general public alive throughout the day and to increase " airmindedness " in East Anglia.

The two competitive events are as follows :—

1. THE RALLY.—In this event visiting pilots will be required to reach the aerodrome non-stop from their stated point of departure as near zero hour as possible; zero hour being 11.00 hr. The winner will be the pilot who attains the highest number of marks when the distance of his point of departure in miles from Hadleigh has been divided by the number of minutes before or after zero hour that the machine crosses the finishing line (the road which crosses the aerodrome in an approximately north and south direction) in flight.

2. AERIAL GOLF.—Competitors will be provided with three bags of flour. These must be dropped within five minutes of receiving the word go on the ground. The pilot whose bomb is dropped nearest to the target will be the winner.

All visiting pilots will be accorded a hearty welcome and those wishing to take part in the On-To-Hadleigh Rally are requested to apply as early as possible for entry form to the Club Secretary.

The Liverpool and District Aero Club.

[Hon. Sec. : W. F. Davison, Hooton Park Aerodrome, Hooton.]

Report for week ending Aug. 18.

Flying Time 34 hr. 40 min. *Dual* 28 hr. 50 min. *Soloists* 5 hr. 50 min. *Instruction.—With Mr. Bentley*—Mrs. Vernon, Mrs. Naylor, Miss Hackforth, Miss Hill, Messrs. Naylor, Compan, Moulsdale, E. H. Williamson, Thornton, Barber, Barker, Henderson, Allcock, Wilcox, Edgar, Greenhalgh, Keniston. *With Flt. Lt. J. B. Allen*—Miss Hill, Mr. Eills. *Pilots.*—Messrs. Crosthwaite, Davison, Leete, Ward. *Soloists.*—Messrs. Benson, McClure, Thornton. Messrs. Lacayo, Goodfellow and Mills of the Lancs. Club also flew. *Passengers.*—9.

On Thursday, we were visited by Sir Sefton Brancker and Sir Alan Cobham en route for Belfast in G-EDCA. Our visitors were investigating the possibility of a Liverpool—Belfast air-line. One understands that influential parties are keenly interested and that developments may be expected in the near future. Notwithstanding our very broad hints, nay, demands, for a thousand or two subsidy in recognition of our efforts, our visitors were brave enough to return on Sunday, staying overnight and making a very early start for London on Monday morning. Mr. Cooper in his Moth MU also paid us a visit on Sunday.

Mr. Thornton was launched on Sunday evening and put up a very good show indeed.

We now have a Clubhouse (and bar) on the aerodrome and one hears talk of a " Stretchers-at-Three " party to celebrate.

Several of our Lancashire Club friends paid us a visit on Sunday evening. Fortunately the bar was open.

Report for week ending Aug. 26.

Flying Time 30 hr. 45 min. *Dual* 24 hr. 20 min. *Soloists* 6 hr. 25 min. *Instruction.—With Mr. Bentley*—Mrs. Naylor, Mrs. Vernon, Miss Hackforth, Miss Hill, Miss Hughes, Messrs. Keniston, Naylor, Greenhalgh, Cowan, Moulsdale, D. H. Williamson, Francis, Barber, Eills, Thornton, Willcox, Spark, Allcock, Henderson, Barker. *Soloists.*—Messrs. McClure, Benson, Thornton, Greenhalgh, Moulsdale, Mrs. Naylor. *Passengers.*—9.

This has been an eventful week. On Wednesday evening the Autogiro arrived and was demonstrated to a number of the Club Members who were hardy enough to turn out notwithstanding the very bad weather. Everybody was most interested and a number of our soloists decided that flying will be really a pleasure when the principle becomes universal.

Mr. Bentley turned out a good crop of soloists this week; Mrs. Naylor (the first woman member to take the air), Mr. Moulsdale and Mr. Greenhalgh, who all put up very good shows. Mr. Naylor arrived whilst his wife was in the air but did not develop any grey hairs. Mrs. Naylor is to be congratulated on beating her husband to it.

Mr. McClure gave an interesting display of acrobatics with the aid of XY. When a diagonal stay is fitted the machine will be ready to fly again, and the Flying Sub-Committee is meantime thinking of having its bye-laws printed in red.

There will be a party in the shed on Sunday evening, which we hope will develop into a very lively affair. Several soloists will no doubt celebrate, and luminous latch-keys will be the order of the evening.

Report for week ending Sept. 2.

Flying Time 38 hr. 55 min. *Instruction* 26 hr. *Soloists* 12 hr. 55 min. *Instruction.—With Mr. Bentley*—Mrs. Naylor, Mrs. Vernon, Mrs. Bentley, Miss Hackforth, Miss Hughes, Miss Todd, Miss Lynch, Messrs. Barber, Barker, Marstrand, Reville, Naylor, Francis, Henderson, Willcox, Andrews, Allcock. *With Flt. Lt. Allen*—Mrs. Vernon, Messrs. Pixton, Perkins, Moulesdale. *Soloists.*—Mrs. Naylor, Miss Hackforth, Messrs. Moulesdale, McClure, Francis, Benson, Greenhaugh, Thornton, Leete, Brooking, Henderson. *Passengers.*—6.

Another crop of first solos this week. Miss Hackforth, Mr. Francis and Mr. Henderson all landing without excitement. Mr. Henderson took the air alone after only 4 hr. 30 min. dual. Mr. McClure passed his R.Ae.C. tests on Thursday.

This week we were visited by Capt. Rimmer, of the Berksh Aviation, and also by Miss Baerlein and Mr. Hall, of the Lancash Club.

Hangar Party.—We said an official Good-bye to Lieut. Bentley a his wife on Sunday evening at an Hangar Party, when we presen him with a silver plaque for his Moth and also a Drift Indicator; a Mrs. Bentley with a fitted travelling case. The evening was enjoy by all and the pyrotechnic display by some. Hangar Parties are very good idea. One hears of a certain member being discover seated on the ground in a perfect stranger's garden at 2.0 a.m. maki a meal of green peas *au naturel*!

[N.B.—Mr. A. L. Nickerson has ceased to be Secretary.—ED.]

The Cinque Ports Flying Club.

[Sec. : R. Dallas Brett, 114, High Street, Hythe.]

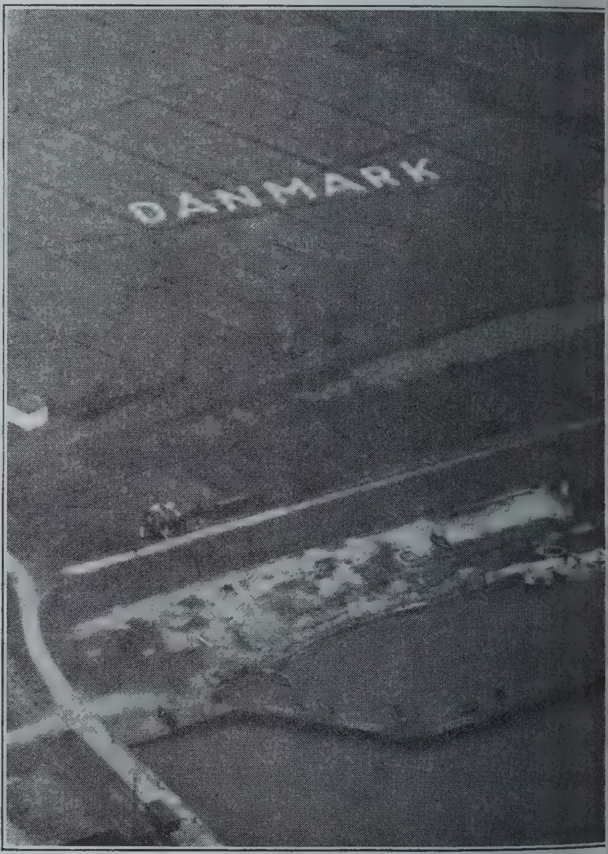
Report for week ending Aug. 18.

Flying Time 9 hr. 35 min. *Test Flights* 20 min. *Special Journey* min. *Instruction.—With Mr. Clarke*—Mr. Weavege-Smith, Mr. Skinn Mr. Smith, Mr. Sargent, Mr. Swinnard, Mr. Parkes, Mr. Mart *Soloists (under instruction)*.—Mr. Skinner, Mr. West. *" A " Pilots* Mr. Douglas, Mr. Wright.

On July 17, one of our members from Ashford, Mr. Skinner, did successful first solo after 7 hr. 30 min. dual instruction. He again f solo the following day, putting up a very good performance, a we hope that he will shortly be taking his tests for his " A " licen

On Aug. 18, at the request of the Kent Motor Club, Mr. Clarke f the machine over the Devil's Kneading Trough at Wye, where Club was holding a Hill Climb. Unfortunately the engine was in a specially good condition, so that Mr. Clarke's exhibition not as exciting as it might have been, owing to the need for exer ing particular care.

The machine will not be available during the week Aug. 19-25 it has to go to the factory for renewal of its Certificate of Airwort ness. We hope to have it back early the following week.



A GOOD EXAMPLE.—The photograph above, which has been kindly sent by the Secretary of Det Kongelige Danske Aeronautiske Selskab (The Royal Danish Aero Club), and was taken by one of the Danish Army pilots, shows the landmark at the harbour of Rodby Havn on Lolland at the spot where the air-line machines habitually enter and leave Denmark.

The landmark consists of the name of Danmark in letter 10 metres high by 125 metres long. The ground in which the letters are cut is whitewashed to make them stand out clearly. The idea of this landmark was initiated by one of the members of the Royal Danish Aero Club and was laid out at the cost of private individuals. The care of it has now been transferred to the Club.

In future passengers travelling to and from Denmark by air will know exactly the time when they are crossing the borders of the country. Similar landmarks on other frontiers, especially on a frontier such as that between Holland and Germany would undoubtedly be very welcome.

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Report for week ending Aug. 25.

Flying Time 3 hr. *Special Journey* 1 hr. *Soloists (under instruction).*—Mr. Ernest Martin, Mr. Skinner, Mr. West. *"A" Pilot.*—Mr. Edgson Wright.

On Aug. 19 Mr. W. R. J. A. R. West, of the Guards' Depot, Canterbury, passed for his "A" licence in excellent style. This is the sixth certificate since the Club opened in May. We have had only one machine, and have consequently lost much time through overhauls, etc.

On the same day, Mr. Ernest Martin, a new member from London, flew solo for the first time on the Club machine, although he had had previous experience during the War.

We hear that the long-awaited agreement with the Air Ministry is actually in process of being drafted, and there seems to be a reasonable hope that we shall be able to provide proper Club room facilities for members within the next month.

On Aug. 26 the machine was flown to Stag Lane for renewal of its Certificate of Air-Worthiness, and we hope that it will return before next week-end, looking very smart in the Club colours.

The Northamptonshire Aero Club.

[Sec.: W. G. Williams, The Grand Hotel, Northampton.]

The Air Ministry have approved the site for an aerodrome for the Northamptonshire Aero Club at Sywell, five miles from Northampton, and have issued a licence for flying to start at once. One machine has been given to the Club for school work.

To begin with the Club proposes to affiliate itself with the Midland Aero Club, and Flt. Lt. Rose will fly over to Sywell one or two days a week to give tuition. The Club is being officially opened on Sept. 29, when a Pageant will be held to celebrate the occasion. The De Havilland and Avro firms have promised to send machines on the opening day, and it is hoped that a large number of private owners will be present.

The Winnipeg Flying Club.

Report for week ending Aug. 5.

Flying Time 52 hr. 43 min. *No. of flights* 412. *Soloists* 22 hr. 58 min. *Dual* 24 hr. 22 min. *Test* 25 min. *Passengers* 5 hr. 8 min. *Dual.*—Miss Bell, Messrs. Cook, Furnival, Antenbring, George, Richards, MacFarlane, McMillan, Haldane, Thomas, Patterson, Grainger, Sutherland, Bertrand, Fraser, Parkhill. *Soloists.*—Miss Magill, Messrs. George, McDougall, Brookes, Frederickson, Parker, Nanton, Haldane, Antenbring, Kitchen, Huggard, Straith, Baragar, Morgan, Gardner, Alleyn, Crosby. *Passengers.*—11. *First Solo Flights.*—Messrs. Antenbring, Newart, Kitchen, Dr. George.

Mr. Bertrand passed the test for a Commercial Licence. Mr. Brookes passed the test for a Passenger-carrying Licence.

The Club Moth, KB, has had a top overhaul.

The Aero Club of India.

The Aero Club of India and Burma has just issued its report and accounts up to March, 1928. The inaugural meeting at which the Club was founded was held on September 19, 1927, at Simla. Sir Victor Sassoon then presided and about 100 Founder Members were elected.

Here perhaps one may explain that Sir Victor Sassoon is remembered by all the old hands in aviation as having spent a very large amount of money on useful and interesting aircraft experiments in 1910-11. Also it was he who, in 1911, provided the necessary finance to start THE AEROPLANE newspaper. He was compelled, for business reasons, to sever his connection with aviation at the end of 1911, but he joined the R.N.A.S. at the outbreak of War in 1914 and was involved as an observer in a very bad aeroplane accident at Dover in 1915 which seemed likely at the time to leave him a helpless cripple for life. However, his indomitable will triumphed and for the last years of the War he did valuable work as liaison officer in Paris. Since the War he has been in charge of the great Sassoon interests in India. To the general public he is known as the owner of Hot Night, second in the Derby last year.

At the inaugural meeting of the Club Sir Victor advocated strongly a vigorous air policy for India and the formation of light aeroplane clubs. Largely as the result of his influence, the Central Club already has 350 members, and members of associated clubs amount to over 1,000.

The Patron-in-Chief of the Club is His Excellency the Viceroy and the President is His Excellency the Commander-in-Chief, Sir William Birdwood. The Vice-Presidents are Sir Henry Moncrieff-Smith and the Honourable Mr. V. J. Patel. The Maharajas of Datia, Bikanir and Jodhpur and the Jam Saheb of Nawanagar are Patrons.

The Chairman of the representative Committee is Sir Victor Sassoon. Mr H. A. Sams, Director-General of Posts and Telegraphs in India, is Vice-Chairman. Major T. S. Impey, formerly R.F.C., is Secretary of the Club.

Subsidiary clubs now exist at Delhi, Allahabad, Karachi, Calcutta and Bombay.

After some discussion the Legislative Assembly of India has agreed to the purchase by the Government of eight aeroplanes and eight spare engines to be distributed among the Clubs, and also for a yearly allowance of 20,000 rupees to each club.

As obviously members of the subsidiary clubs would devote their time and money to their own clubs, the question of the maintenanc of the Central Club arose and the Government of India has decide to allow the Central organisation 30,000 rupees to start with, in retur for which the Central Club will act on behalf of the Government i organising and controlling the flying clubs. This control is assure by the fact that before flying clubs can obtain the Government grar their organisation must be approved first of all by the Aero Clu of India and Burma and next by the Director of Civil Aviation (Lieut Col. F. C. Shelmerdine, O.B.E.), who, having approved, appoints th Aero Club to represent his Department.

Steps are being taken to train Indian mechanics in the care an maintenance of the aeroplanes and engines of the flying clubs. An the statement is made in the report that there is likely to be a sti bigger demand for trained mechanics as probably the De Havillan Company will open a factory in India on lines similar to that adopte by the firm in Australia.

In a final note, the Secretary, Major T. S. Impey, states that the meeting held on Mar. 23, 1928, Sir Victor Sassoon announced tha he would bear the whole of the expenses of the Club from its founda tion in 1927 up to Mar. 31, 1928. Thus, thanks to this generous actio the Club starts its second year in a strong financial position. Hi many friends of the early days of aviation will recognise in thi a gesture which is typical of Sir Victor.

FLYING SCHOOLS.

The De Havilland School.

Report for fortnight ending Aug. 26.

Flying Time 500 hr. 15 min. *Instruction.—Dual,* 176 hr. 10 min. *Solo,* 248 hr. 35 min. *Other Flying* 75 hr. 30 min.

As can be observed by our figures, the School has done an excelle fortnight's work and shows undoubtedly that it is the largest, mos up-to-date and best organised school of flying in the world.

Our latest achievement lies in the success of elementary pupil carrying out cross-country flights in formation on Moth machine Three such flights have been accomplished in first-rate style, to th great credit of both pupils and instructors.

Mr. Mohammed Roushdy, of the Egyptian Government, made a excellent first solo on an advanced type machine, the D.H.9J, and ha since done other satisfactory solo flights on this type. Mr. Roushd is in all probability the first Egyptian to fly an advanced type machin and we wish him every success when he takes over his duties wit the Directorate of Civil Aviation in Egypt.

Our Indian Government pupils are progressing satisfactorily an three of them have already qualified for "A" Certificates. They we reviewed during the week by Air Vice-Marshal Sir Sefton Brancke who was thoroughly satisfied with their progress.

We have received visits from quite a number of well-known person Sir Alan Cobham, Mr. Levine and Miss Boll came along to fly th new Gipsy-Moth and Mr. Levine was so attracted by it that he wante to purchase one there and then, but naturally our large contrac rendered immediate delivery an impossibility.

Two officials of the Rotterdam Aero Club, Mr. Kolff, the Presiden and Mr. Schmidt Krans, the Chief Instructor, returned a visit ma by various De Havilland officials at a recent flying meeting in Rotte dam. Both flew slotted and Gipsy-Moths and were greatly impresse

Three pilots of the Genoa Flying Club came to take delivery their first two Moth seaplanes and were thoroughly delighted wit the School, in which they were greatly interested.

Flt. Lt. Webster flew to the Continent on a Moth machine an carried out demonstrations in various places before keenly intereste spectators.

Moths were well represented at the Hadleigh Aero Club Meetin held at Clacton on Aug. 24. A Flying Meeting held in England withou a Moth representative would really be unique!!!

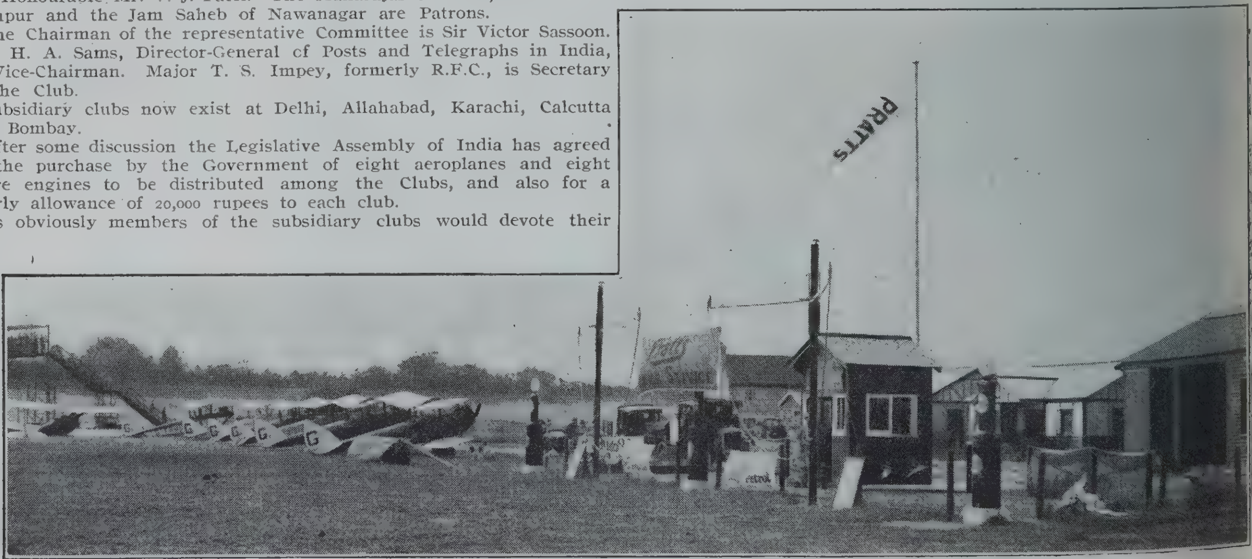
Besides the many Moths which were tested, a new D.H.61 fitte with slots underwent its tests, and the slots were found to be high successful. This machine is for use on an Australian Air Line.

The Henderson Flying School.

[Managing Director: Lt.-Col. G. L. P. Henderson, Brooklands Aer drome, Byfleet.]

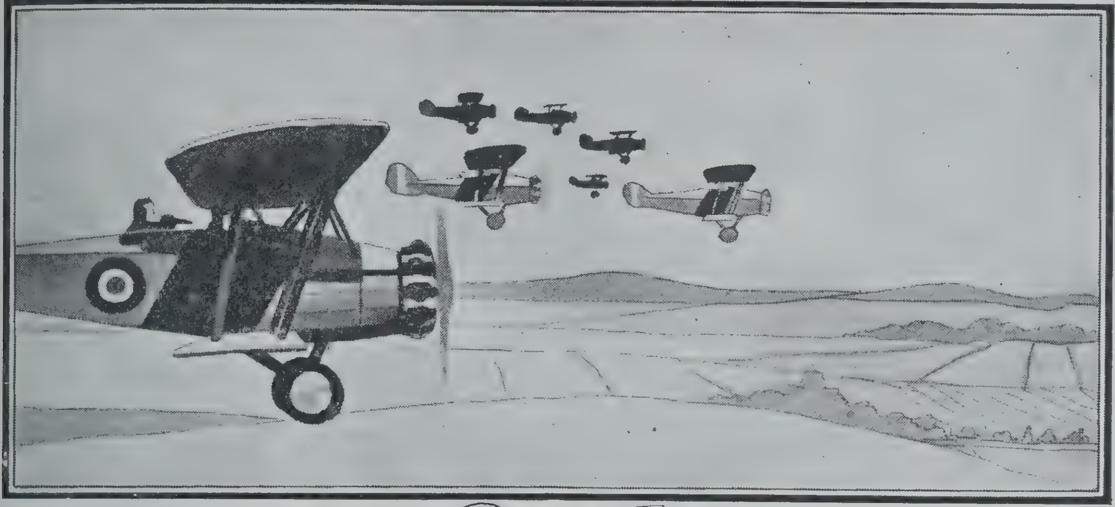
Report for week ending Aug. 23.

Flying Time 78 hr. 30 min. *Instruction.—With Mr. H. D. Davis-*



A REMINISCENCE.—Moths on King's Cup Day at Pratts' Filling Station beside the Henderson Flying School at Brooklands.

Choice of the Experts!



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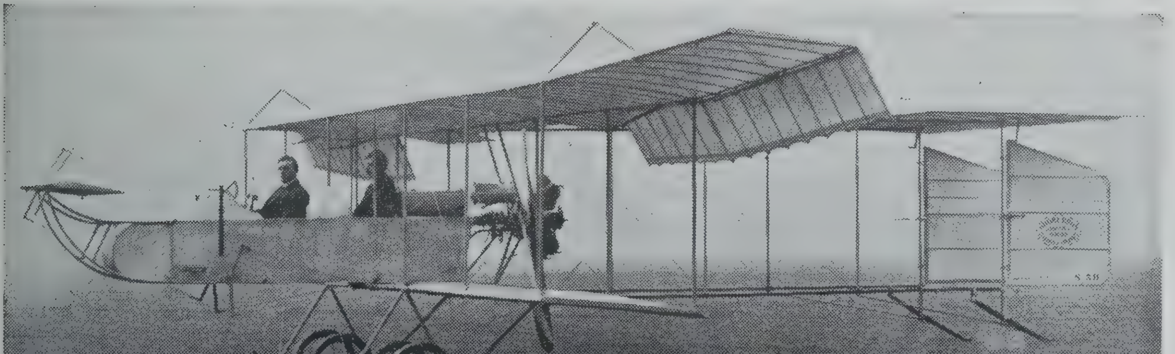
D.A. 250



1912 "SHORT" No. 38 TYPE BI-PLANE
figured in Army manoeuvres 1913 and saw Active Service during early part of the war. A machine of this type was one of the first aeroplanes to be fitted with a gun and another with wireless.

16 YEARS AGO. Messrs Short Bros. have always been famous for the design and efficiency of their Aircraft, and in 1912 the above machine was the latest product of the Eastchurch Factory. For the machines they constructed in those days they used as they still do

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Cellon (Richmond) Ltd., Cellon Works, Petersham Road, Richmond, Surrey.

Messrs. Groner, Courtney-Bankes, Moursi, Austin, Oldmeadow, Hsiao, Stewart, Robertson, Du Cane, Dr. Forsyth, Dr. Shiels, Mrs. Scott, Mrs. Monkton, Miss Kidston. *With Mr. W. F. Davenport*—Messrs. May, Stewart, Miss Wellby. *Soloists.*—Messrs. Robertson, Groner, Du Cane, Daniels, Knox, Anderson, Oliver.

Mr. Stewart is now going well ahead and is almost ready to do his R.A.C. tests.

Mr. Courtney-Bankes and Mr. Austin are now almost ready for their first solo flights.

During the week 330 passengers were carried in our machines. Lt.-Col. Henderson and Mr. Anderson returned from Belfast on Friday. A week's flying was put in at Belfast from Malone Aerodrome and a field adjoining. A large number of spectators had an excellent view of the races from the air. The interest shown in aviation was considerable and there seems to be every prospect of a Light Aeroplane Club being started there shortly.

Report for week ending Aug. 30.

Flying Time 36 hr. *Instruction.—With Lt.-Col. G. L. P. Henderson*—Messrs. Austin, Moursi, Hsiao, Taylor, D'Eyncourt. *With Mr. H. D. Davis*—Messrs. Austin, Bankes, Taylor, Preston, Norman, Groner, Michel, Austin, Oldmeadow, Dr. Forsyth, Messrs. Hsiao, D'Eyncourt, Stewart, Billimoria, Mrs. Monkton and Mrs. Scott. *With Mr. W. F. Davenport*—Mr. May Miss Wellby. *Soloists.*—Messrs. Hsiao, Daniel, Groner, Oliver, Stewart, Anderson, Hill, Allen.

Capt. Stewart did his height test, reaching a record of 12 feet and down again in 55 minutes [So the report. Was it 1,200 or 12,000?—ED.], thus demonstrating the extraordinary efficiency of our Renault-Avros. The ceiling of this machine has not yet been ascertained.

Mr. Hill also did his tests for his "A" Licence during the week.

Pupils, generally speaking, express great delight at the quietude of Brooklands Aerodrome and thoroughly appreciate the fact that there is no congestion in the air.

A number of new pupils joined during the week.

LOW FLYING COMPLAINTS AT HAMBLE.

Air Vice-Marshal Sir Sefton Brancker, Director of Civil Aviation, visited Hamble Aerodrome on Aug. 31 to investigate the complaints made by certain residents concerning the alleged nuisance caused by aeroplanes flying low over the village. These complaints had been embodied in a petition addressed to the Air Ministry requesting that steps be taken to mitigate the nuisance.

One of the petitioners, a Mr. Finlay Smith, is the owner of the tall flag pole with which Miss A. B. Grace, flying an Avian, had collided on the previous day. Mr. Finlay Smith, accompanied by Mr. F. Blessley, met Sir Sefton Brancker as representatives of the petitioners, and the latter gentleman announced that he intended also to erect a flagpost and to connect it by wire to that of his neighbour, Mr. Finlay Smith.

Sir Sefton Brancker pointed out that this would be extremely dangerous, and suggested that it might lead to a charge of manslaughter if it caused a fatal accident.

On the general question of the alleged nuisance, the Director of Civil Aviation said that the aerodrome was a private one, belonging to A. V. Roe and Co. Ltd., and used by them for their business. It was also used by the R.A.F. and by the Hampshire Flying Club. The Air Ministry's sole concern with it was to issue a licence for it after satisfying themselves that it was safe. He would consider the complaints put before him, but he was afraid that residents who disliked the noise of aeroplanes were in much the same position as residents at the side of a road who disliked the noise of motor traffic, and that they would have to grin and bear it.

A CANADIAN FATALITY.

According to a Reuter telegram, Capt. Harold Nase, official instructor to the flying club at Granby, Quebec, was killed in a crash on Aug. 30. Two other occupants of his machine were seriously injured.

FLYING WITHOUT A LICENCE.

On Aug. 28, Mr. E. B. W. Bartlett, of Gadshill, Isle Wight, was summoned at Trelleck (Monmouth) Police Cou for flying an aeroplane without having a pilot's licence wit him.

Mr. Bartlett was taking a passenger to Blackpool on on of the Bristol and Wessex Flying Club's Moths on July when he was forced to land in a field near Trelleck b engine trouble. He telephoned to Bristol for a mechani and on completion of repairs sent his luggage, with hi pilot's licence included, back to Bristol by the mechani

As he was about to fly back to Bristol, a member of th local police force asked for his licence, which he was ur able to produce, and as he nevertheless flew back, the la was set in motion against him.

The Chairman of the Bench, Capt. W. Walters, R.N., sai that the defendant was apparently not in the habit of flyin about without his license, and the ends of justice would b met if he paid the costs.

[If the Bench was correct in its interpretation of the law then the law should be altered to bring it into line wit the Motor Act, under which a driver is not required to carr his license with him, but only to produce it within a reasor able time (if charged with any offence) merely to show tha he possesses a license.—C. G. G.]

A GIGANTIC TEST=BALLOON.

Under the limitations until recently imposed on Germa aircraft it was impossible in Germany to carry on exper ment or research at altitudes above 13,000 ft. (4,000 m.). T overcome this difficulty the Deutschen Versuchsanstalt fü Luftfahrt (German Aeronautical Research Laboratory) Adlershof, ordered from the Luft-Fahrzeug-Gesellschaft (th former builders of Parseval airships), a balloon of enormou size, which should be capable of carrying a very conside able load, to 10,000 m. (33,000 ft.) or more and of remainin at such extreme heights for considerable times.

The purpose of this balloon was to make experiments o the effects on human beings of exposure to the pressure an temperature conditions at great heights, to carry out test on engines at altitudes, investigate the structure of the atm sphere, and so on.

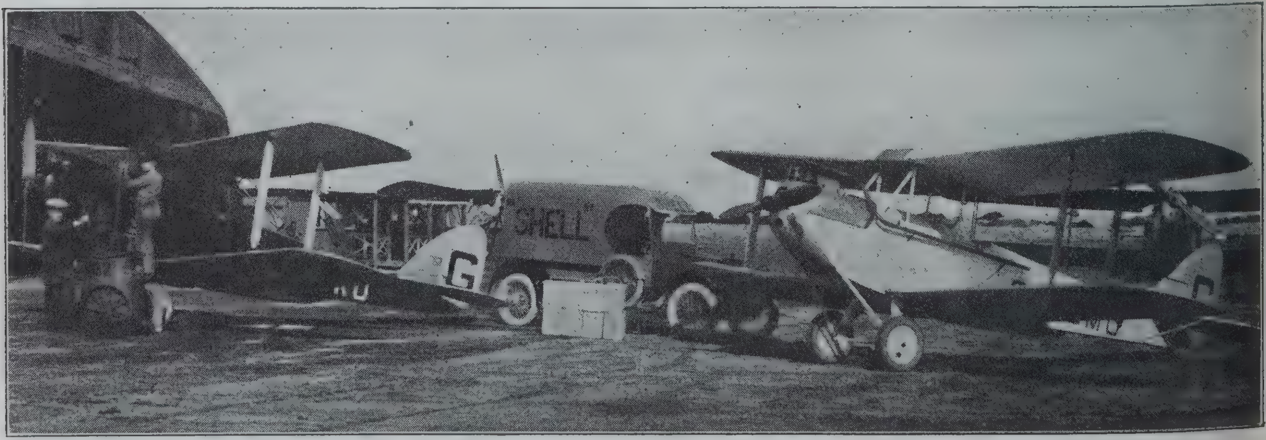
This balloon, which has been christened "Bartsch vo Sigsfeld," has recently been completed and has made tri flights. It is of the spherical type, has a diameter of 26.3 n (86 ft.), a maximum height of 42 m. (137 ft. 6 in.), and cubic capacity of 9,500 cub. m. (334,000 cub. ft.).

Though the general form of this balloon resembles that the usual spherical type, the details of construction are som what unusual. The neck of the envelope is not open to th atmosphere, but is closed round a cylindrical trunk, whic runs vertically up through the whole envelope and oper to the air at the top.

This trunk consists of a fabric tube stiffened by rig rings at short intervals and made so that it may be opene up or closed up like a concertina. There is in this co certina-like trunk an opening into the gas-space, and th level of this opening can be changed by the pilot throug a system of central cables. To raise the level of this oper ing the upper section of the "concertina" is closed, th lower one stretched. In this way the pilot may adjust th height of the gas-vent into the trunk to any desired leve and any gas which escapes as a result escapes through th trunk and out of the top of the balloon.

There is therefore no risk of puffs of gas reaching the ca

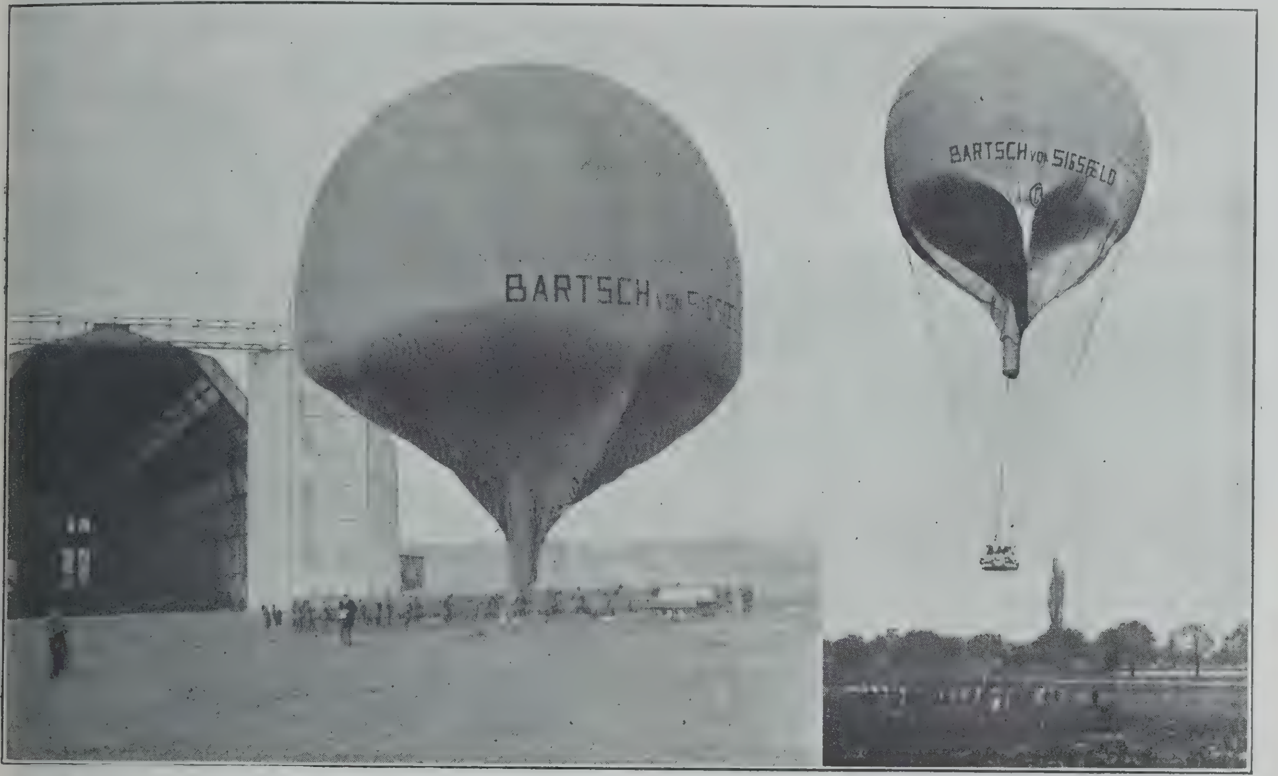
Another peculiarity is the swinging of the basket a



ANOTHER REMINISCENCE.—Messrs. Stack and Leete filling their Moths with Shell Spirit at Malta on their way to India.

normally far below the gas-bag. This makes the suspension ropes hang nearly vertically, and reduces the tendency of the load on the ropes to pull in the diameter of the envelope when it is only partially inflated. The inflated section of the partly-filled envelope retains therefore an undistorted form.

According to an article in the *Zeitschrift Für Flugtechnic and Motor Luftschiffahrt*, the dead weight of balloon, envelope, rigging and car, is only 2,210 kg. (4,860 lbs.). The available lift fully inflated is about 10 tons, at sea level, falling to 3¾ tons at 30,000 feet. This balloon should therefore be able to take a total load of about 3,600 lbs. to that height.



THE BIGGEST BALLOON.—The balloon for experiments at high altitudes built by the Luftfahrzeug Gesellshaft. The size of the balloon is shown by the Zeppelin shed in the background on the right.

HANDLEY PAGE
AUTOMATIC SLOT CONTROL

"——When the engine was throttled back suddenly during a climbing turn, and the machine was stalled on the turn, it was still possible to raise the lower wing by normal use of the 'stick.' It is this kind of climbing turn that, in conjunction with engine failure or loss of power, has killed so many pilots in the past, and it can be said definitely that the automatic slots have reduced its dangers almost to vanishing point."

"MORNING POST,"
8th May, 1928.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 16; Monday, 39; Tuesday, 35; Wednesday, 35; Thursday, 37; Friday, 42; Saturday, 42.

Imperial Airways Ltd. :
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return : Machines 100, passengers 912, freight 27 tons.

Air Union :
Paris—London and return : Machines 62, passengers 301, freight 12½ tons.

K.L.M. :
Amsterdam—Rotterdam—London and return : Machines 35, passengers 196, freight 5½ tons.

Sabena :
Brussels—London and return : Machines 14, passengers 115, freight 1½ tons.

Deutsche Lufthansa A.G. :
Amsterdam—London and return : Machines 22, passengers 64, freight 3½ tons.

Miscellaneous :
British machines 6, passengers 7.
Foreign machines 7, passengers 9.

Total number of trips by British Machines, 106, carrying 919 passengers. Foreign Machines, 140, carrying 685

COMPARATIVE FIGURES.

Week ending Sept. 1.
Machines, 246; Passengers, 1,604; Crews, 475; Total personnel, 2,079.
Corresponding week, 1927 :
Machines, 165; Passengers, 945; Crews, 296; Total personnel, 1,241.
Corresponding week, 1926 :
Machines, 126; Passengers, 844; Crews, 158; Total personnel, 1,002.
Corresponding week, 1925 :
Machines, 154; Passengers, 794; Crews, 221; Total personnel, 1,015.
Corresponding week, 1924 :
Machines, 145; Passengers, 684; Crews, 177; Total personnel, 861.
Corresponding week, 1923 :
Machines, 139; Passengers, 636; Crews, 222; Total personnel, 858.
Corresponding week, 1922 :
Machines, 135; Passengers, 433; Crews, 245; Total personnel, 678.
Corresponding week, 1921 :
Machines, 104; Passengers, 356; Crews, 127; Total personnel, 483.
Corresponding week, 1920 :
Machines, 129; Passengers, 285; Crews, 154; Total personnel, 439.

Note.—In addition to the Croydon traffic shown above, K.L.M. have during the past week run 12 machines, carrying 4¾ tons of newspapers between Lympne and Ostend.

Croydon Notes.

Owing to a misunderstanding on the part of the office staff of The Aeroplane concerning the precise date of the return from leave of the regular producer of these notes, contributions from the gentleman who has so ably acted as understudy for the past two weeks ceased a week before contact with Croydon could be re-established, and therefore full confirmation of the reports of the past fortnight as to the sere and yellow condition of the new aerodrome buildings, and the crackedness of Mr. Silas Q. Attaboy (or was it the other way round?) must be deferred to another occasion.

In the meantime it may be recorded that from casual observation in transit along the Brighton road last week-end one has no fears of any imminent collapse of either the new buildings or of this year's high level of air traffic intensity.

As this week's traffic returns will show, the falling off which inevitably sets in at about this period is not as yet very pronounced, nor is it particularly likely to become so until either really bad weather, or serious autumn mist, becomes prevalent.

Apropos autumn mists, Croydon is now apparently provided with a new type of pyrotechnic signal which can be thrown to a much greater height, and gives a coloured light signal of much greater intensity and longer duration than did those previously used.

Rumours of tests with a new signal mortar and bombs which would produce such effects were current a month or two back, and during a very heavy rainstorm which enveloped the Croydon area one evening last week, a very vivid light signal obviously emanating from Croydon was observed from a high place some miles away from the aerodrome.

THE GROWTH OF AIR MAIL TRAFFIC.

An announcement by the Postmaster-General shows that the Air Mail traffic handled by the British Post Office is increasing steadily.

Comparing the quarter ending June 1928 with the corresponding period of 1927 shows that parcels sent by air to Paris increased from 5,000 to over 6,000 lbs., and letters increased 80%. Parcels sent to Germany have increased from 9,000 lbs. to 14,000 lbs., and letters by 50% in the same period.

On the Cairo-Basra air service over 4,600 lbs. of letters were carried in this quarter, as against about 3,000 lbs. in the corresponding quarter of 1927.

THE DUTCH EAST INDIES AIR SERVICE.

The five Fokker F.VII-3m monoplanes (three Armstrong-Siddeley Lynx engines) for the new passenger and air-mail service in the Dutch East Indies are now about to be delivered. They will fly from Amsterdam to Batavia, and it has been arranged with the Dutch Postmaster-General that they shall start at weekly intervals and carry mails to any of their Eastern landing places.

The dates of departure from Amsterdam are to be Sept. 13, 20, 27, and Oct. 4 and 11. Arrival at Batavia is scheduled for twelve days after the day of departure.

On arrival at Batavia the machines are to be used for an internal service in the Dutch East Indies, which will pretty certainly later be extended to Rangoon, and possibly to Calcutta.

Ultimately it is hoped to inaugurate a regular mail service over the whole route from Amsterdam to the East Indies, and the success or otherwise of the five journeys now to be undertaken will do much to determine the imminence of this development.

GERMAN AIR TRAFFIC IN 1927.

A report recently issued by the Deutsche Luft Hansa A.G. states that in 1927 this company carried 102,681 passengers, and flew a total of 5,720,000 miles, on 90 regularly operated air lines. The corresponding figures for 1927 were 56,268 passengers and 3,820,000 miles flown, showing an increase of about 85% in passengers and 50% in miles flown.

ACROSS THE STATES BY TRAIN AND AEROPLANE.

A combined rail and air service to expedite the crossing o the United States from coast to coast was opened at the end of August.

The Pennsylvania, the Great Northern and the Norther Pacific Railroads and the North-West Airways Corporatio are co-operating in this undertaking.

The air section of the journey is used as a link betwee the night journeys by train, the precise details of th journey apparently depending on the particular points o departure and desired arrival of the passengers.

The first West-bound passenger left New York for Chicag on the night train on Sept. 1, flew from Chicago to Minneapolis, and once more entrained for an unnamed destination.

The first East-bound passengers left Seattle by a train o the evening of Aug. 30, emplaned at St. Paul, flew thenc to Chicago, and took train for New York.

A saving of some seven hours on the coast-to-coast journe can, it is said, be made in this way. The scheme appear to be incomplete, for apparently the traveller has one fu day of train travel at the western end of his journey.

DEVELOPMENTS IN EGYPT.

According to a report in *The Daily Telegraph* th Egyptian Government has drafted a bill for the control aviation in Egypt, and proposes in the near future to co struct two public aerodromes for Civil Aviation.

One of these is to be at Almaza, near Cairo, and the othe at Dekhla, near Alexandria. The latter will be a combine seaplane station and aerodrome.

The Cairo aerodrome is expected to cost £90,000, and th Alexandria station £400,000.

The same report states that the Egyptian Ministry Commerce is thinking of purchasing three aeroplanes f experimental civil uses.

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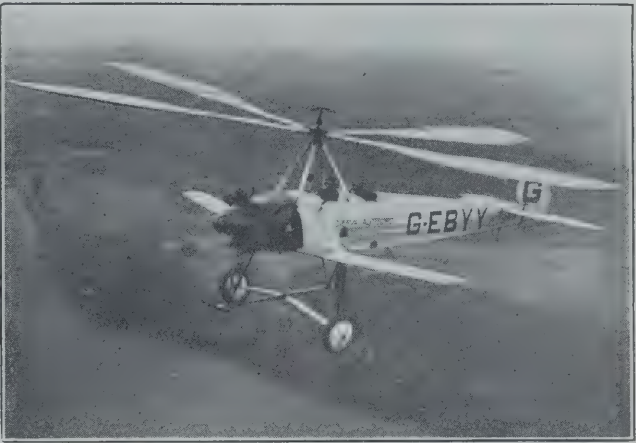
THE AUTOGIRO



By courtesy of Newcastle Chronicle, Ltd.

A Cierva Autogiro leaving Newcastle.

THE AUTOGIRO HAS JUST COMPLETED A 3000-MILE TOUR OF GREAT BRITAIN.

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BUSH HOUSE,
ALDWYCH, LONDON, W.C.2.

Telephone:—CENTRAL 4861.
Telegrams:—CIERVAGIR, ESTRAND, LONDON.

AVIAN AGENTS.—In the back seat of this Avian is seen Mr. W. R. Parkhouse, Managing Director of the Agra Engineering Co. Ltd., of 7, Bank Street, Teignmouth, S. Devon, who are the sole distributing agents for Avro Avians in the counties of Devon, Cornwall, Somerset and Dorset and part of Gloucestershire, including Bristol. The Agra Engineering Co. have an aerodrome at Little Haldon, near Teignmouth, which has been licensed by the Air Ministry. At it shed accommodation and Avian service are available. The demonstration Avian is used for school and air taxi work. In the front seat is Mr. Phil Pike, of P. Pike and Co., who are sub-agents for Avians in Exeter, Plymouth and Bath. Both Mr. Parkhouse and Mr. Pike are pilots of long experience, the former being in the R.A.F.O.

THE LIGHT AEROPLANE DURATION RECORD.

By flying for 24 hours 36½ minutes on a Caudron C.109 monoplane (40 h.p. Salmson engine), M. Maurice Finat claims to have beaten the unofficial world's record for duration on a light aeroplane recently made by Mr. Hubert Broad on a De Havilland Moth.

No Duration Record for Light Aeroplanes is recognised by the *Fédération Aéronautique Internationale*. And the De Havilland Co. never advertised Mr. Broad's flight as a record. He simply flew for 24 hours to show that a Moth could do it. Duration flying beyond such a time by light aeroplanes is useless, as it proves nothing.

AIR TRANSPORT PERSONNEL FOR INDIA.

Operating personnel are wanted by an air transport firm in India. There will shortly be vacancies for about eight pilots and for seven ground engineers. Pay for pilots will be 800 rupees per month, rising to about 900 rupees if satisfactory at the end of the year with further rises thereafter as business increases. A certain amount of medical supervision will be provided free. Travelling expenses will be paid while on duty and first-class fare to Calcutta.

Ground engineers will start at 400 rupees a month and a supervising engineer, with at least a D Licence, is needed at 1,000 rupees a month. The machines to be used will probably be Avians and D.H.61s.

Pilots and engineers who are free at the moment, and Air Force personnel who are due to leave within the next month or two, are invited to send a clear statement of their experience, together with photographs, addressed "India," c/o The Aeroplane.

A CHANCE IN CANADA.

There is a good opportunity at present for an enterprising and experienced man with Canadian Vickers Ltd. in Montreal. The firm want a superintendent to take charge of their metal shop. He must have experience of the construction of metal aircraft, and a good knowledge of the building of floats and hulls of duralumin is essential. Good pay and a guarantee of employment will be given to the right man. Applicants should apply to Canadian Vickers Ltd., Montreal.

NEW COMPANIES.

British Cadastral and Topographic Air Survey Company.—British Cadastral and Topographic Air Survey Company Ltd. was registered as a "private" company on Aug. 20, with a nominal capital of £5,000 in £1 shares. The objects are to adopt an agreement with Brig.-Gen. Sir Charles Delmé-Radcliffe, D.S.O., C.B., C.V.O., to carry on in any part of the world the business of surveyors, explorers, photographers map makers and designers in all its branches, particularly by means of aeroplanes, airships, balloons and aircraft of all kinds, printers publishers, book and map sellers, etc.

The subscribers (each with one share) are: Miss F. A. Barker, 22 Thurleigh Road, Wandsworth Common, S.W.12, secretary. Miss G. A Hopkins, 36, Barnmead Road, Beckenham, secretary.

The first directors are Sir Charles Delmé-Radcliffe (permanen managing director) and others to be appointed by the subscribers Solicitors: Charles Humphries and Co., 36, Basinghall Street, E.C The registered office is at 36, Basinghall Street, E.C.2.

Aviation and Agencies Ltd.—Private company. Registered Aug. 24 Capital, £3,500 in 3,000 8 per cent. participating preference shares o £1 each and 10,000 ordinary shares of 1s. each. To manufacture operate, hire or deal in aeroplanes, airships, aircraft, waterplanes seaplanes, automobiles and all kinds of vehicles; to survey and t prepare maps or plans, etc. The first directors (to number not les than 2 nor more than 5) are: J. R. C. Badham, Sherwood, Markway Godalming, merchant. C. F. M. Chambers, 56, Gerrard Road, Barne aviator. Solicitor: R. J. Boning, 44, Bedford Row, W.C.1. Registere office: 356, Grays Inn Road, W.C.1.

MORTGAGES AND CHARGES.

Henderson Flying School Ltd.—Debenture dated July 10, 1928, t secure £2,000 charged on the company's undertaking and propert present and future, including uncalled capital. Holder: Mrs. Henderson, 17, Lincoln House, Basil Street, S.W.3.

PERSONAL NOTICES.

Forthcoming Marriage.

VIGERS—VIGERS.—The engagement is announced between Cap A W. Vigers, M.C., D.F.C., youngest son of Mr. and Mrs. T. W Vigers, of Montville, Guernsey, and Marjorie Frances, eldest daught of Mr. and Mrs. C. H. Vigers, of Kippington House, Sevenoaks.

Marriages.

FOWLER—OSWALD.—On Aug. 30, at Bath, Major F. B. Fowle A.F.C., to Evelyn Pleasance, elder daughter of Mr. and Mrs. Oswal of St. Christopher, Combe Down, Bath.

RAPER—BENOIST.—On Sept. 1, at Dieppe, Alfred Baldwin Rap to Renee Angele Rosalie, daughter of the late M. Hector Benoist a Mme. Benoist, of Lille, France.

Birth.

PRESLAND.—On Sept. 2, at "Skyros," Reddons Road, Beckenha Kent, to Eileen (*née* MacCallum), wife of Reginald Presland, R.A.F.O. a daughter.

BOOKS ON AERIAL NAVIGATION

PRINCIPLES AND PRACTICE OF AIR NAVIGATION.
Lieut. J. E. Dumbleton. 12s. 6d.

PRIMER OF AIR NAVIGATION.
H. E. Wimperis, M.A. 8s. 6d.

MANUAL OF AIR PILOTAGE. 2s.

INTERNATIONAL GENERAL AERONAUTICAL MAP—"BRITAIN." 4s.

AIRCRAFT INSTRUMENTS.
H. N. Eaton. £1 5s.

GENERAL INSTRUMENT EQUIPMENT FOR AIRCRAFT, 1927. 3s. 6d.

AERONAUTICAL METEOROLOGY.
W. R. Gregg. 12s. 6d.

THE AIR PILOT, GREAT BRITAIN. £1 12s. 6d.

Orders to the value of £5 or over will be sent post free in the United Kingdom. The cost of postage must be added to all net prices in these lists for orders under £5.

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THE AEROPLANE—SEPT. 12, 1928.

LIGHT AEROPLANES

THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

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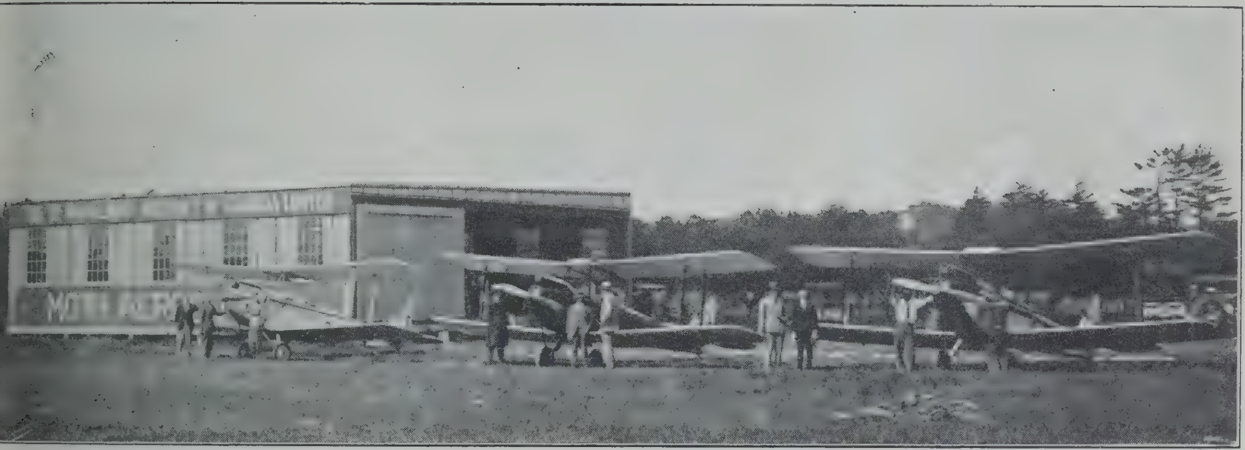
> "TO THEM NO BOUNDS OF EMPIRE I ASSIGN,
> NOR TERM OF YEARS TO THEIR IMMORTAL LINE."
>
> (DRYDEN—*Virgil's Æneid.*)



WORKING IMPERIALLY:—The De Havilland Factory in Canada, where Moths and other D.H. types are being assembled. This is the second factory established by the De Havilland Company outside Great Britain, the first being in Australia. Mr. R. A. Loader, the General Manager, and Mr. E. L. Capreol, the chief pilot, are seen between the two machines on the right.

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SEPT. 12, 1928.

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ON ATLANTIC FLYING AGAIN.

ince the subject of flying the Atlantic was last men- ed in this paper, sundry other attempts have been made ıout success. Two good men have been burned to death rying to stagger off the ground on an overloaded machine. others escaped death by drowning, only to be nearly en to death amid Greenland's icy mountains. Also, e the subject was last discussed the news been published that Mr. Courtney's Dornier Wal ch was abandoned in mid-ocean when he and his panions were picked up by the *Minnewaska*, has since discovered accidentally by another steamer and has brought into port.

ıe fact that the Wal sat in the open Atlantic for four or days and then stood towing into port has, of course, vinced a certain number of people that an air line across Atlantic is forthwith and at once a workable proposition, ıuse this incident has proven that if a flying-boat be forced light in the open Atlantic it may survive.

ıe survival of the Wal was, in fact, rather unfortunate, if it had sunk decently after the crew had been rescued, particularly silly line of argument would never have pened. All the survival proves is that Courtney and Co. e very lucky in having a fine day in which to sit and it rescue, and that the boat was lucky in having a con- ation of fairly good weather.

cidentally one might ask why the ship which rescued crew did not either rescue the Wal or sink it. The Wal ot, in fact, a very large vessel, but her excellent Napier ines and the general solidity of her structure are quite ıgh to have knocked a nasty hole in the nose of any small- d steamboat which might have collided with it. There- leaving the Wal a derelict was distinctly creating a ger to shipping.

nyhow, arguing that because the Wal survived five days he open Atlantic, therefore a flying-boat line across the ntic is now a working proposition, is just as silly as argu- that because Lindbergh flew the Atlantic without engine ıre, therefore the time is ripe for a trans-Atlantic air operated by single-engined land-going aeroplanes of h.p.

ıe whole point is this that if there had been half an ntic gale blowing, Courtney and Co. and the Wal would e been at the bottom long before any of the rescue ships d have reached them. With about a quarter of a gale, Wal might have kept afloat until the crew was taken off, it certainly would not have survived being towed into .

ıe outstanding feature of the rescue of Mr. Courtney the crew of the Dornier Wal was certainly the tless functioning of the Marconi wireless apparatus. e a number of Mr. Courtney's friends had tried to per- le him before he started on his voyage to scrap his less apparatus in order to carry more petrol. As it turned it certainly would not have survived being adrift for days end.

MR. COURTNEY'S ACCOUNT.

this connection there is much interest in reading Mr. rtney's own account of the affair, as contained in a letter Detroit, Mich., written on Aug. 27. He says:—

ving been running about all over the place I have not had a ce to write before. I have only just seen your article on my little and as you seem to be misinformed on sundry important points, it me to make the following corrections,—for publication if yo: —

didn't send off any S.O.S. whilst gliding down. From the time v the fire to the time we hit the water was about thirty seconds. had to land by was the glow of the fire on the white tops of kers, which I saw from about twenty feet up. This was G.M.T.

er we had put out the last of the fire we ran up our emergency hook mast. Gilmour sent out S.O.S. We got no reply, and our, being an experienced operator, advised waiting until 8 ck when all operators would be on duty. At eight we sent off ıer S.O.S. and were immediately answered by the *Celtic*.

mour suddenly asked me "Our position? Quick!" I, being half from my first dose of seasickness, made a rapid calculation, and was sent out. I knew it was only approximate.

Later we took some D.F. bearings on ships, but these were of only moderate accuracy owing to our having lost our drogue and being unable to keep the ship's head steady. However, with these and a re-calculation of dead-reckoning I got what I knew was a satisfactorily accurate position of our coming-down. This new position, as afterwards checked by the *Minnewaska's* captain, was dead accurate.

Unfortunately, those who picked up our new position took it to be the position at time of sending. Meanwhile we had drifted about 25 miles and had no more juice in our batteries to correct the misunderstanding. Meanwhile, Captain Claret, coming to the new position, allowed that an aeroplane would drift faster than a ship, with both Gulf Stream and wind, and thus found us.

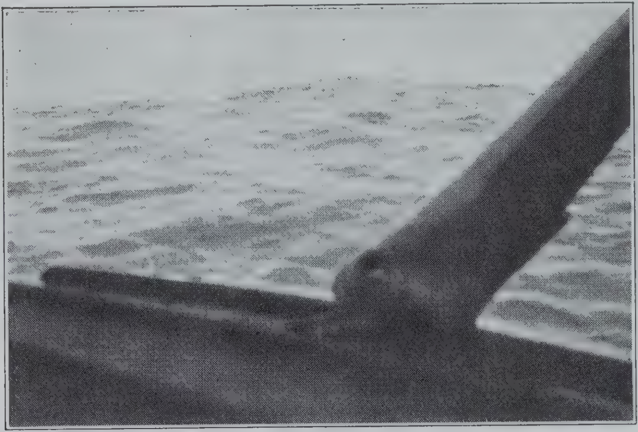
On every occasion at Horta we took opportunities to test our emergency gear, and I claim that, though we know now how we could have done better, we put up the most useful demonstration of wireless in aircraft that I know of.

Our boat was picked up four or five days later, having survived heavy weather, and brought into Montreal with about 25 per cent. damage, practically all of which was done taking her abroad. I know of no better demonstration than this of the value of the flying-boat.

As regards shipping companies, the flying-boat is one day going to be of the greatest use to them, and there must yet be many failures amongst those who, like myself, try difficult experiments. (No, Sir, not silly stunts!) We did take every reasonable precaution, and I think we learnt more for aviation than we could have learnt by any amount of "success." I know the shipping companies don't mind trying to help those who did their best to help themselves.

There is no doubt that properly-built flying-boats and even seaplanes can stand an immense amount of sea-going, and that human energy is enormously resistant. Consequently

ADRIFT IN MID-ATLANTIC.—The burnt-out engine of the Dornier Wal, the jury wireless mast, and Mr. Pierce on the look-out for a rescue-ship.



ADRIFT IN MID-ATLANTIC.—A photograph sent to "The Aeroplane" by Mr. Courtney, endorsed, "A life on the ocean wave, or why I missed my lunch."

there is always a possibility that a seaplane crew might survive less good fortune than attended Courtney and Co.

When the first American attempt was made to cross the Atlantic by air, two of the N.C. boats were forced to alight on the water and survived very rough weather. That under Lieut. Commander Bellinger, now U.S. Naval Attaché in Rome, sank after several hours, but the crew was rescued. And that commanded by Commander John Towers actually navigated for several hours to safe harbour in the Azores under her own power, escorted by an American warship. But even that is no argument in favour of trying to run a flying-boat line across the Atlantic regularly.

There was a case during the War, as readers of the for
coming History of Yarmouth Air Station will discover
due course, of the pilot and observer of a wrecked seapl
surviving three days and three nights hanging onto
single float which had detached itself from the wreck. A
of course, there was the other historic incident, also rela
in the Yarmouth History, of the late Vincent Nicholl with
other officers and two men keeping afloat for three days
two nights in one of the old America-type flying-boats,
though it was leaking badly and had one of its wing-
floats washed away.

With careful maintenance, such as already exists in
workshops of Imperial Airways at Croydon, multiple-engi
flying-boats might get across the Atlantic ninety-nine ti
out of a hundred without being forced to alight. And out
a thousand flights with ten forced alightings, nine of
machines might either make good its trouble and get av
again or might sit on the water unharmed until picked
But sooner or later one of those flying-boats would co
down in an Atlantic gale and would simply disappear.
such a thing happened it would simply be so many li
thrown away because we know very well that no exist
boat could survive under the circumstances.

Therefore yet again one pleads with those who are s
ously concerned for the good of aviation that no more sy
pathy shall be shown for attempts to fly the Atlantic u
a definite step forward has been made by designing a flyi
boat which, in the case of being forced to alight, will
able to cut loose from its wings and aero-engines and becc
a properly navigable motor life-boat.

As one has said several times in this paper, the idea
quite old, it is a simple engineering proposition and it
the only possible way of assuring the safety of trans-Atla
aviators. Flying the Atlantic has now ceased to be a g
adventure. Future flights can only be either sheer fool
ness or a reasonable commercial proposition.—C. G. G.

THE SUCCESS OF IMPERIAL AIRWAYS.

The fourth annual general meeting of Imperial Airways Ltd. was held on Sept. 8 when the announcement of the impending resignation of Sir Eric Geddes, the Chairman of the Board of Directors, was made public.

In announcing his resignation Sir Eric said that he felt justified in taking that step as the company was now in a most encouraging condition and he had come to the conclusion that he could not afford the time to give adequate and increasing attention to the growing affairs of the company and its widespread interests.

The present position of the company is extremely favourable. The first dividend to be paid by the company, one of 5 per cent., has been sanctioned and at an extraordinary general meeting of the shareholders which followed the ordinary meeting the new Government agreement for the Empire route to India was approved.

The agreement will enable the company to earn a total of almost £2,500,000 in ten years as compared with under £600,000 remaining to be earned under the existing agreement.

[Owing to pressure of flying events there has been no possibility of dealing fully with this subject this week. But one proposes next week to deal extensively with the activities of Imperial Airways.—C. G. G.]

THE STUDY OF FOG-FLYING.

Believing that the time has now come for further study of the problem of fog in aviation, the Daniel Guggenheim Fund for the Promotion of Aeronautics is about to establish a laboratory on a section of an established airway where fog-flying under regular operating conditions can be studied. The laboratory will be under the direction of an experienced pilot with engineering and scientific training, and the choice of the airway will be made after a careful survey of operating and meteorological conditions.

As consultant to the Fund, and owing to his particular interest in this problem, Colonel Charles A. Lindbergh will act as special adviser to the enterprise. Nobody could be more suitable, for Col. Lindbergh is a member of the Caterpillar Club by virtue of having twice saved his own life by descending by parachute from mail-machines which he had driven so far into impenetrable fog that turning back would have been as dangerous as going further into it.

The project is in accord with the recently announced policy of the Fund to concentrate on the fundamental research problems of aeronautics. It continues the work begun in September, 1926, when the Fund organised an informal committee, consisting of the Assistant Secretaries for Aeronautics in the Departments of War, Navy and Commerce, Messrs. Edward P. Warner, F. Trubee Davison, and William B. MacCracken, respectively, together with Mr. Harry F.
Guggenheim, to study the problems involved in fog fly
and to stimulate their solution.

Since that time much progress has been made in the st
of the major aspects of fog flying, such as the dissipatio
fog; the maintenance of course and the location of lan
fields while flying through a fog; the development of
struments to show accurately the height of an aerop
above the ground, replacing the barometric instruments
in general use to show the height above sea level; the
provement of aeroplanes and instruments assuring a
flying altitude for a plane in fog, and the penetration of
by light rays.

Valuable contributions to this development have
made by the Army Air Corps at Wright Field; by the N
at the Navy Aircraft Factory in Philadelphia and the N
Air Station at Lakehurst and Bellevue Laboratory; by
Department of Commerce at the Bureau of Standards;
by the National Advisory Committee for Aeronautics at
laboratory at Langley Field. In addition, the aeronau
laboratories at various universities, the air-mail opera
companies, the American Telephone and Telegraph C
pany, and some of the great electrical companies, have
aided in the research study of this problem.

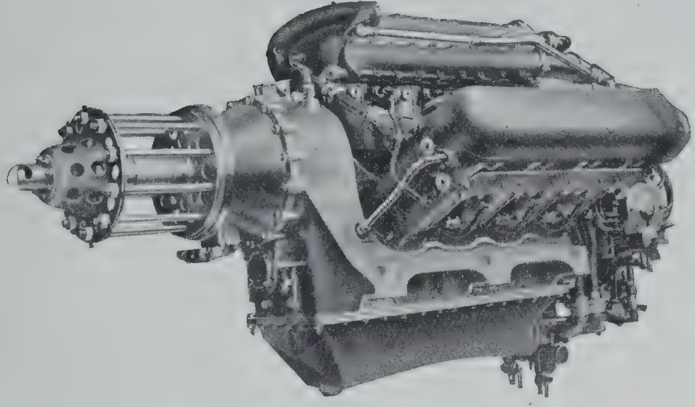
The fund has repeatedly stressed the fact that u
ordinary conditions the aeroplane is a thoroughly safe
reliable machine. The purpose of this investigation i
make the aeroplane safe under "extraordinary" conditi
thus assuring a reliable method of transportation in all k
of weather.

On the airway selected, all of the devices that have
perfected or may be perfected by the research organisat
mentioned above, or by other organisations or individ
will be tested and reported upon. The result of these
can then be made the basis for further study and ex
ment, leading to the final solution of the problem.
benefit of the experience and observation of scientist
Europe in regard to fog-flying will be available through
contributions of the various representatives of the Fun
foreign countries.

CATAPULTED AIR MAILS TO ENGLA

The s.s. *Ile de France* of the *Compagnie Générale Tr*
atlantique on her present trip from New York is carr
mails which are to be delivered to Plymouth by catapu
seaplane. On the previous inward trips on which this me
of expediting mail delivery has been used, the seaplane
left the ship off Ireland and has flown direct to Cherb
and then to Paris.

On this occasion the seaplane after leaving the ship
call at Plymouth before proceeding to Cherbourg.



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AUSTRALIA—NEW ZEALAND.

At 19.11 hrs. (N.Z. time) on Sept. 11 Mr. Kingsford Smith and Mr. Ulm left Sydney on the Fokker monoplane "Southern Cross" (three Wright Whirlwind engines) and flew to Christchurch, New Zealand, where they arrived at 09.15 hrs., having covered the distance of about 1,400 miles in 12 hours.

Shortly after leaving Sydney the New Zealand wireless stations began to pick up messages from the machine, and a two-way communication was maintained throughout the flight except for one break, due to running into a storm. The "Southern Cross" passed over Wellington at 07.20 hrs. and after circling the city low down continued to Christchurch.

This is the first flight from Australia to New Zealand. A previous attempt by Messrs. Hood and Moncrieff on a Ryan monoplane having ended in disaster, nothing having been seen or heard of the machine after its start.

ACROSS CANADA.

On Sept. 10 Sq. Ldr. A. E. Godfrey, M.C., A.F.C., R.C.A.F., arrived at Vancouver after having flown from Ottawa, a distance of 3,300 miles in 32 flying hours. He made three stops owing to bad weather and for refuelling. The flight was made in connection with the proposed trans-Canada air mail service.

Sq. Ldr. Godfrey made a similar flight in September, 1926, when he flew from Montreal to Vancouver in the late Mr. J. Dalzell McKee's Douglas seaplane. This flight was the first trans-Canadian flight by seaplane

PARIS—DUBLIN—PARIS.

On Sept. 7 Mr. Osmond Esmond, the member for Wexford in the Irish Dail, piloted by Capt. Challe, flew from Paris to Wexford in a Schreck flying-boat. They left the Seine, near Paris, at 10.00 hrs. and arrived at Cherbourg at midday. They left Cherbourg again at 14.45 hrs. and arrived at Wexford at 18.30 hrs.

On Sept. 8 they flew from Wexford to Dublin, alighting in the Alexandria Basin soon after noon.

On Sept. 10 they flew back to Paris.

Mr. Esmond stated that the object of the flight was to call attention to the favourable position of Wexford as a seaplane base for traffic between Ireland and the Continent.

LONDON—BUCHAREST IN 10 HOURS.

On Sept. 6 Flt. Lt. E. R. C. Scholefield, A.F.C., D.C.M., chief test pilot of Vickers Aviation Ltd., left Brooklands aerodrome at 06.00 hrs. on a Vickers Vivid all-metal long-distance reconnaissance biplane (Napier Lion Series XI engine) to fly to Bucharest.

One hour eighteen minutes later he was seen over Brussels and at 09.55 hrs. he landed at Nuremburg. After a short stay he left for Belgrade, where he arrived at 14.55 hrs. After refuelling he continued to Bucharest, which was reached at 17.55 hrs. (B.S.T.).

The machine carried standard equipment and ordinary service capacity tanks.

The actual flying time was ten hours and the distance flown well above 1,300 miles.

The object of the flight was to demonstrate the Vivid before the Rumanian military authorities in competition with French, Italian and German aircraft.

The Avro Avenger single-seat fighter (Napier Lion engine) is also in Bucharest in connection with the same competition.

THE RETURN FROM INDIA.

The attempt made by Mr. C. D. Barnard, accompanied Mr. E. H. Alliott, with the Duchess of Bedford as passeng to make a flight to India and back in eight days, af having been dogged by misfortune in the shape of eng trouble on the outward journey, has been redeemed by brilliant return journey.

Leaving Karachi at dawn on Sunday, Sept. 2, Bush (1,200 miles) was reached that evening. On Sept. 3 str head winds forced a landing in the Syrian desert a li short of Aleppo, which town was reached on the follow day. On Sept. 5 Sofia was reached. and on Sept. 6 machine arrived at Croydon at 20.05 hours after a non-st flight of 1,270 miles.

The machine used on this flight was the Fokker F. monoplane G-EBTS (*Princess Xenia*), with a Bristol Jupi VI engine, used by Mr. R. H. McIntosh on an attemp westerly crossing of the Atlantic, and later, in company w Mr. Bert Hinkler, for an attempt on the world's lo distance record.

The machine left Croydon for India on June 10 last reached Bushire in three days. Here it was found that engine had been seriously damaged, as a result it is lieved of wrongly blended fuel, and a new engine had to sent from England before the flight could be continu So Karachi was reached only on Aug. 22.

From then till Sept. 2 was spent in awaiting a new screw to replace the original one, which had develope defect. The Duchess of Bedford, being unable to wait longer, left Karachi by steamer for Marseilles, whence own private Moth is to bring her to England.

The alleged cause of the original engine trouble was filling of tanks from separate containers of benzol petrol, whereby instead of producing a properly blen mixture, the two fuels were left more or less separated, heavier benzol in the bottom and the petrol in the top of tanks. As a result, towards the end of the stage to Bush the engine had to run on almost straight petrol, unsuited this particular engine. Detonation occurred, the eng overheated, and damage to pistons and cylinders resulted.

Considerable care is necessary with high-compression gines which need a fairly high benzol content in their f to ensure that this fuel is properly mixed with the pet and whenever properly blended mixture is not available i wise to mix the two fuels and to give them a thoro shaking up before filling the tanks.

The Air Ministry has sent the following telegram to Barnard :—

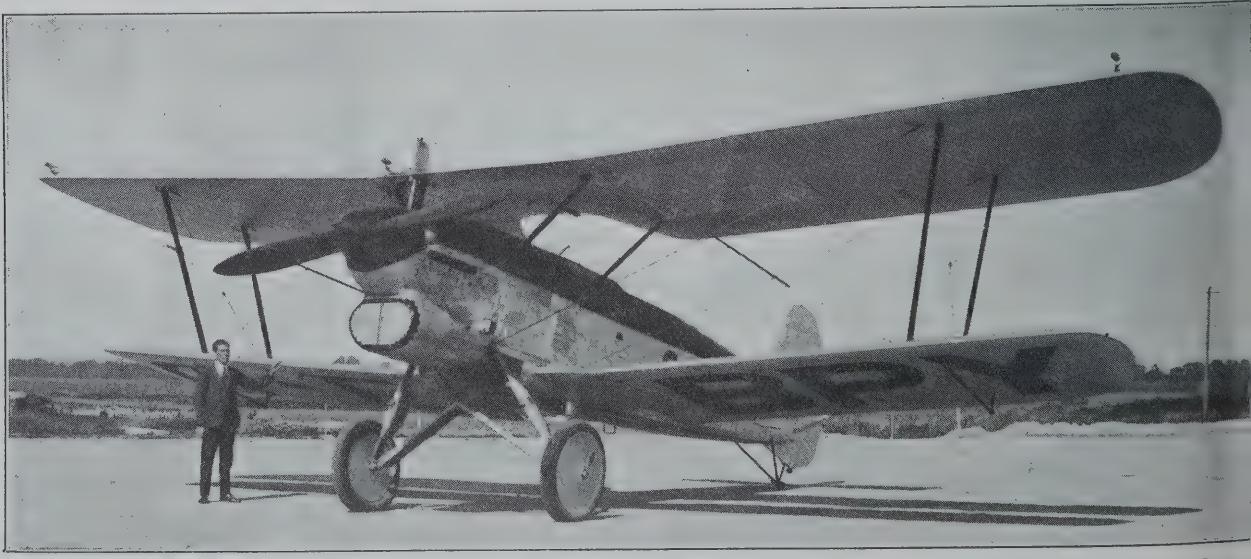
> Air Council tender warm congratulations to you and Flg. Off. All on successful completion of record flight from India.—(Signed) San Hoare, Secretary of State for Air.

LISBON—LOURENCO MARQUES.

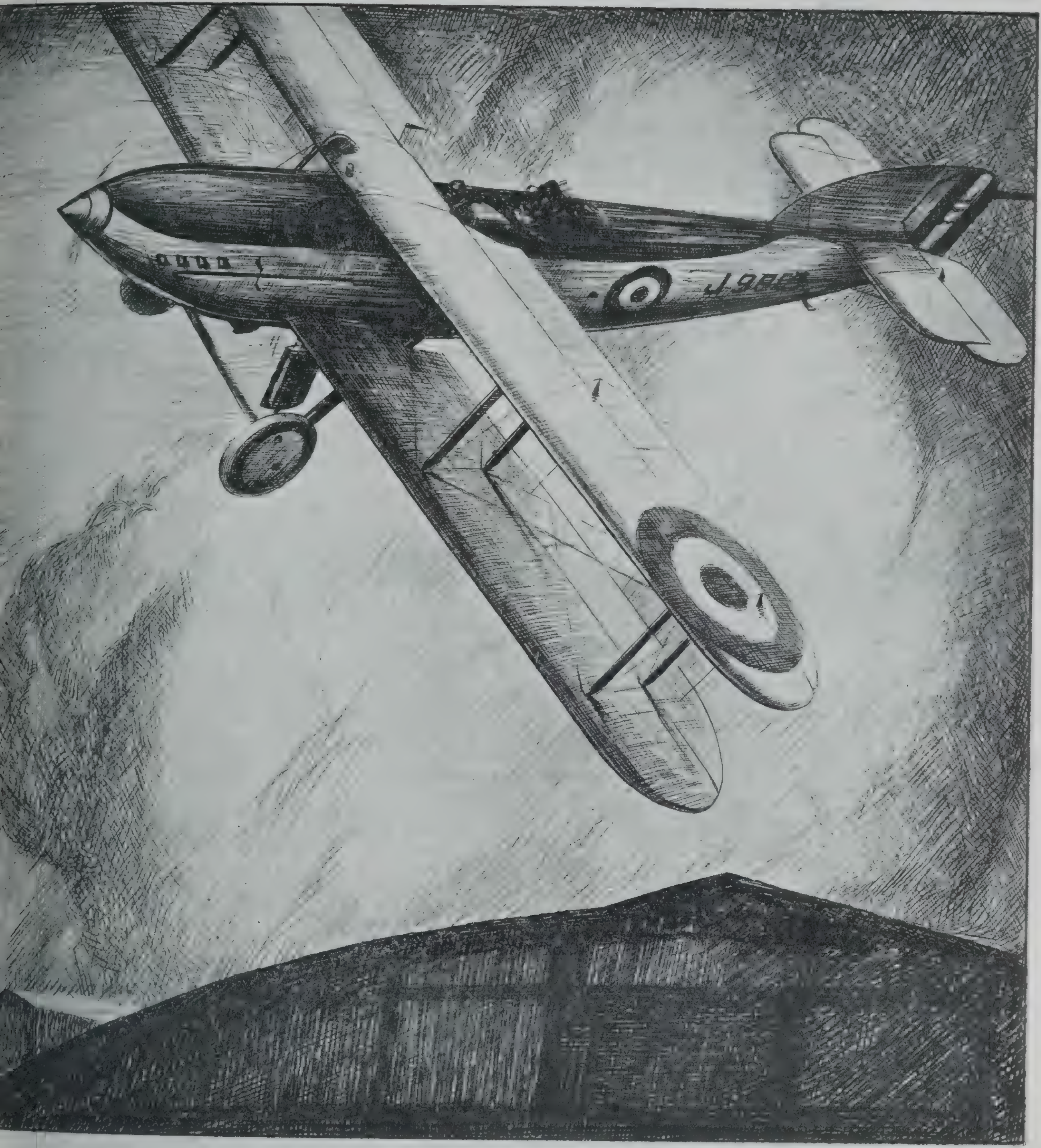
On Sept. 6 Capts. Pais Ramos and Viegas, Lieut. Este and Sergt. Manuel Antonio, left Lisbon in two Vickers paraiso two-seat reconnaissance biplanes (Napier Lion gines) to fly to Lourenço Marques, Portuguese East Afri

The flight has been divided into three stages, Lisbo Bolama, Portuguese Guinea, Bolama—S. Paulo de Loan Portuguese West Africa, and S. Paulo de Loanda—Loure Marques, Portuguese West Africa.

The first two stages follow the west coast line but fr S. Paulo de Loanda the route will follow the Benguella R way to Elizabethville, thence to Broken Hill and the Zamb River, to Beira and the east coast.



A GOOD SHOW.—The Vickers Vivid (Napier Lion engine on which Mr. E. R. C. Scholefield ("Tiny") flew from Brooklands to Bucharest,—1,300 miles in 10 hours.



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FAIREY

THE ROYAL AIR FORCE.

The London Gazette.

Sept. 4.

General Duties Branch.—Plt. Off. P. N. Seally-Allin is promoted to the rank of Flg. Off. (Mar. 17); Wing Cdr. E. R. Manning, D.S.O., M.C., is placed on the half-pay list, Scale B (Sept. 1 to 30 inclusive).

The following Flg. Offs. are transferred to the Reserve (Aug. 22):—Class A.—C. H. A. Farman, S. J. Stocks. Class C.—V. G. H. Gee.

Plt. Off. E. S. Whitaker resigns his S.S. comn. (Aug. 29); Plt. Off. on probation T. Joyce-Clarke relinquishes his S.S. comn. on account of ill-health (Aug. 29); the S.S. comn. of Plt. Off. on probation W. E. Catling is terminated on cessation of duty (Aug. 20).

Accountant Branch.—Plt. Off. on probation J. H. Glenn is confirmed in rank and promoted to the rank of Flg. Off. (Aug. 1).

Medical Branch.—The following Flg. Offs. are promoted to the rank of Flt. Lt. (Aug. 24):—C. W. Coffey, J. Hutchieson, M.B.

Reserve of Air Force Officers.—General Duties Branch.—The following are granted comns. in Class AA (ii) as Plt. Offs. on probation:—M. G. B. Clark (Aug. 11); A. G. Douglas (Aug. 13); E. F. Briscoe (Aug. 14). Plt. Off. on probation W. D. Brookes is confirmed in rank (Aug. 21). The following Flg. Offs. relinquish their comns. on completion of service:—F. James (May 5); M. H. Edmunds (May 5). Flg. Off. K. H. Holley resigns his comn. on appointment to a comn. in the Territorial Army (April 30).

Auxiliary Air Force.—Accountant Branch.—No. 603 (City of Edinburgh) (Bombing) Squadron.—The following Plt. Off. to be Flg. Off.:—J. L. Jack, M.C. (July 25).

Sept. 7.

General Duties Branch.—The following are granted S.S. comns. as Plt. Offs. on probation with effect from and with seniority Aug. 24:—W. S. C. Adams, R. A. Beynon, E. J. Brighton, D. A. Craik, E. B. Grace, G. D. Hoyland, R. Jones, G. S. King, J. Lewis, S. S. Mackay, G. R. Montgomery, M. G. Parker, S. P. Richards.

The following Plt. Offs. on probation are confirmed in rank:—H. W. Duffey, C. P. Barker, W. P. J. Thomson (July 27); M. R. Kelly (Aug. 8). Plt. Off. R. David takes rank and precedence as if his appointment bore date June 19, 1927, immediately following Plt. Off. Arthur Edward John Pratt on the gradation list.

Sq. Ldr. A. R. C. Cooper is placed on the retired list at his own request and is granted permission to retain the rank of Wing Cdr. (Aug. 22). (Substituted for the notification in the *Gazette* of Aug. 21.) Flt Lt. C. D. Palmer is placed on the retired list at his own request (Sept. 1).

The following Flg. Offs. are transferred to the Reserve:—Class A.—K. C. Baker (Aug. 31). Class C.—W. N. L. Cope (Aug. 29).

The following Flg. Offs. resign their perm. comns.:—R. P. H. Utley (Sept. 1); R. Scott-Taylor (Sept. 5).

Flt. Lt. T. Le G. Pynches relinquishes his S.S. comn. on account of ill-health and is permitted to retain his rank (Aug. 31); Flg. Off. B. J. J. Nimmo relinquishes his S.S. comn. on account of ill-health (Aug. 29); Lt. (E) K. A. B. Hutson, R.N., Flg. Off., R.A.F., relinquishes his temp. comn. on return to Naval duty (Sept. 3).

Medical Branch.—E. J. Mockler, M.B., is granted a S.S. comn. as a Flg. Off. for three years on the active list, with effect from Feb. 23, 1926, and with seniority of Feb. 23, 1925 (Substituted for the notification in the *Gazette* of Mar. 9, 1926.) Flg. Off. E. J. Mockler, M.B., is promoted to the rank of Flt. Lt., with effect from Feb. 23, 1928, and with seniority of Feb. 23, 1927. (Substituted for the notification in the *Gazette* of Mar. 6, 1928.) Flt. Lt. E. J. Mockler, M.B., is granted a perm. comn. in this rank (Sept. 5); Flg. Off. (Quartermaster) F. W. Goodread is promoted to the rank of Flt. Lt. (Quartermaster) (Sept. 1).

Chaplains Branch.—The Rev. M. K. Macleod, M.A., F.S.A., is gran a perm. comn. (Sept. 5).

Reserve of Air Force Officers.—General Duties Branch.—The lowing are granted comn. in Class A.A. (ii) as Plt. Offs. on probation E. A. Clench (Aug. 20); M. F. Ogilvie-Forbes (Aug. 20); J. T. Horsfall (Aug. 22). The following Plt. Offs. on probation are firmed in rank:—H. J. Penrose (Aug. 29); L. Currie (Aug. 31).

The following officers are transferred from Class A to Class C Flt. Lt. C. Jackson (July 31); Flt. Lt. C. D. Spiers (Aug. 14); Flg. L. W. Thres, D.F.C. (Aug. 9).

Flg. Off. J. Gallacher relinquishes his comn. on completion of vice (July 28).

Appointments.

Week ending Sept. 1

General Duties Branch.—Group Captain C. D. Breese, A.F.C., R.A.F. Base, Gosport, pending taking over command, 3/9.

Squadron Leaders F. Fowler, D.S.C., A.F.C., to Home Aircraft De Henlow, 29/8. L. J. MacLean, M.C., to H.Q., A.D.G.B., Uxbridge,

Flight Lieutenants J. D. I. Hardman, D.F.C., to No. 22 Group H S. Farnborough, 27/8. F. G. S. Mitchell, to H.Q., Inland Area, S more, 17/8. C. S. Riccard, to No. 45 Sqdn., Middle East, 11/8. G Taylor, to R.A.F. Depot, Uxbridge, 3/9. S. B. Harris, D.F.C., A.F to H.Q., India, 31/8. C. H. Stilwell, to R.A.F. Depot, Uxbridge, 1 G. C. Bladon, to R.A.F. Base, Gosport, 31/8. V. P. Feather, to St and Supply Depot, Aden Command, 1/9.

Flying Officers J. T. Riggs, to R.A.F. Depot, Uxbridge, 1 H. J. G. E. Proud, to No. 446 Flight, Mediterranean, 1/9. C. Martin, to No. 10 Sqdn., Upper Heyford, 21/8. A. H. Montgom to H.M.S. *Courageous*, 24/8. R. Benham, to No. 12 Sqdn., Ando 17/9. W. R. Baird, to No. 460 Flight, Mediterranean, 2 W. Anderson, to A. and G. School, Eastchurch, 15/8. W. C. Bullock, to No. 10 Group H.Q., Lee-on-Solent, 29/8. R. A. A. Cole No 14 Sqdn., Middle East, 14/8. W. N. Blain, to No. 39 Sq Bircham Newton, 27/8. W. A. Andrews, to No. 41 Sqdn., Northolt, 1 A. S. Lewis, to H.Q., A.D.G.B., Uxbridge, 1/8. C. H. Roberts, to N Sqdn., Old Sarum, 30/8. L. C. Burcher, to H.Q., Halton, 27/8.

Pilot Officers F. W. Murison and G. K. Horner, to No. 60 Sq India, 1/8. H. J. Cross, to Aircraft Depot, India, 1/8. The un mentioned Pilot Officers are posted to the R.A.F. Depot, Uxbridge appointment to S.S. Comns. with effect from 24/8:—W. S. C. Ad R. A. Beynon, E. J. Brighton, D. A. Craik, E. B. Grace, G. Hoyland, R. Jones, G. S. King, J. Lewis, G. P. Longfield, S MacKay, G. R. Montgomery, M. G. Parker and S. P. Richards.

Medical Branch.—Flight Lieutenant J. G. Russell, M.B., B.A. Central Medical Establishment, 11/9.

Stores Branch.—Flight Lieutenants H. T. H. Copeland, to N F.T.S., Sealand, 27/8. H. E. T. Crocker, to R.A.F. Depot, Uxbri 27/8. F. J. W. Humphreys, to H.M.S. *Furious*, 1/9.

Flying Officer C. I. Fry, to R.A.F. Depot, Uxbridge, 27/8.

Accountant Branch.—Pilot Officer M. L. Jones, to No. 2 Sc Manston, 27/8.

Chaplains Branch.—The Rev. J. G. Stephens, B.A., to R.A.F. D Uxbridge, 27/7.

The Far-East Flight.

The four Supermarine Southampton flying-boats (Na Lion engines) under the command of Group Capt. H. Cave-Browne-Cave, D.S.O., D.F.C., reached Batavia on S 9, and will go on to Singapore on Sept. 14.

THE R.A.F. IN MOSUL.—A group of R.A.F. Officers taken at Mosul on June 28, 1928. Left to right, standing, Maj. F. C. W. Taylor (Education Officer), Flg. Off. J. O. Parkin, Flg. Off. L. B. McGoverne, Flg. Off. C. H. L. Evans, Flg. Off. H. T. J. Jagger, Flg. Off. A. B. Kay (killed on July 5), Flg. Off. F. S. Hodder, Flg. Off. F. C. Griffin, Flg. Off. W. Heron, R.A.F.M.S., Plt. Off. G. Selk. Seated, Flt. Lt. F. C. Farrington, M.C., Flt. Lt. W. E. G. Mann, D.F.C., Flt. Lt. D. Craik, D.F.C. (Cdg. No. 5 Arm. Car Section), Flt. Lt. G. S. Oddie, D.F.C., A.F.C., Sq. Ldr. C. H. Keith (Cdg. No. 6 (A.C.) Sqdn.), Flt. Lt. A. L. A. Perry-Keene, Flt. Lt. P. J. Clayson, M.C., D.F.C., Flt. Lt. G. H. Russell, D.F.C., Flt. Lt. F. C. Chalmers.

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A Fatal Accident.

The Air Ministry regrets to announce that as the result of a presumed descent in the North Sea on Sept. 6 of a Blackburn aircraft of No. 422 Flight H.M.S. *Argus* the following personnel are reported missing:—Plt. Off. Samuel Hatton (pilot), Lieut. Charles Sheldon Booth, R.N., and J.77760 Telegraphist Edmund George Bourke Grigson.

R.A.F. Cadetship and Awards.

The Air Ministry announces that AAs. P. B. Coote (Send, Surrey), J. Whitehead (Canterbury), and D. V. Angell (Bourn, Cambridge), from No. 1 School of Technical Training (Apprentices), Halton, and AAs. H. B. Wrigley (Seascale, Cumberland), and T. U. C. Shirley (Bittern, Southampton), from the Electrical and Wireless School, Flowerdown, have been selected for cadetships at the R.A.F. Cadet College, Cranwell, on the result of the examination held on completion of their three years' training as aircraft apprentices.

Sir Charles Wakefield Scholarships valued at £75 each, have been awarded to Flight Cadet G. D. Stephenson (Marham, Norfolk), on the result of the recent competitive examinaaion for entry into the R.A.F. Cadet College, and to Flight Cadet P. B. Coote. The Hyde-Thomson Memorial Prize, valued at about £33, has been awarded to Flight Cadet T. U. C. Shirley.

Engineering and Signals Officers.

Air Ministry Weekly Orders state that extensions of service have been approved in certain cases to make good an expected deficiency in engineering and signals officers.

A limited number of qualified officers in these branches, retained on temporary commissions to complete time for retired pay, may be allowed to extend their service on the active list up to a retiring age not exceeding fifty years. The only officers who will be considered for such extensions will be those who are qualified E*, E, S*, or S, in the Air Force List, or such as are now holding, or may be in future appointed to, a post to which a qualified technical officer is allowed by establishment.

The conditions governing such extended service will be modified from those under which the officers are at present serving, and will be operative from the date of their extension of service, that is, the date on which under the present conditions of service they would be due to be placed on the retired list.

Officers holding the rank of Flying Officer will be promoted to Flight Lieutenant, with effect from the date of their extension of service. (The eligibility of officers for promotion under normal rules at an earlier date remain unaffected.)

Only service after the date of extension of service will count for increments of retired pay under this scale.

Officers invalided from the Service after the date of t extension of their service will, if eligible for additional di ability retired pay, be granted such additional retired p according to the scale laid down in paragraph 3530 (5), K. and A.C.I.

Applications for extension of service under the above co ditions from officers due under their present conditions to placed on the retired list prior to March 31, 1931, should rea the Air Ministry not later than March 31, 1929. Applicatio are afterwards to be submitted annually so as to reach t Ministry by March 31 in respect of officers due for retir ment within two years of that date. Applications, when f warded, should be accompanied by remarks as to the su ability of the applicant for extension of service.

Inter-Service Training.

The Army, Navy and Air Force Gazette is responsible f publishing the following statement:—

It has been decided that the system of voluntary classes for training of certain naval ratings and R.A.F. *personnel* in the duties the sister Service, which was instituted in 1926, shall be discontinu Arrangements have been made between the Admiralty and Air Minis to ensure that in every battleship and cruiser carrying aircraft, engine-room artificer and one shipwright shall be capable of perfor ing the duties of the fitter (aero engine) or carpenter rigger, R.A. respectively, if the need should arise.

Reliefs for such airmen will normally be obtained from a carr or base, and relief by the naval ratings concerned is only to be sorted to when no R.A.F. relief is immediately obtainable, and never to be resorted to in time of peace except on occasions of treme urgency when British prestige or danger to life are involv On all other occasions, the proper R.A.F. relief must be awaited.

When a battleship or cruiser provided with aircraft is about to commissioned, the Commodore of the Depôt will arrange direct w the Air Officer Commanding, Coastal Area, for one engine-ro artificer and one shipwright to be attached to a base of the R.A for a period of two months, provided that equivalent ratings w similar experience are not already available.

Similarly, in order to render ordnance artificers fully competent assist in connection with armament fittings in aircraft borne H.M. ships, one ordnance artificer from each battleship or crui equipped with aircraft will be sent for a period of five da immediately before commissioning, to a Royal Air Force Gunn School, provided no ordnance artificer with similar experience already available. He will there be able to familiarise himself w the latest types of aircraft armament fittings.

Extension of Reserve Service.

The service of the following officers of the R.A.F.O. been extended for a period of five years:—

Class A.—*Flying Officers*: F. M. Brownlee, R. W. C ston, C. S. Kent, W. Ledie, F. J. Letzer, L. O. Moss, M. A. Prescott, H. W. Smith, H. Tullock, R. J. Weaver.

Class AA.—*Flying Officer*: E. F. Smith.

Class BB.—*Flying Officer*: C. A. Jamblin.

ARMY CO-OPERATION IN 'IRAQ.—The 1928 Artillery Co-operation course for the 'Iraq Army. From left to right, standing, Maj. Ismail Hakky, Capt. Mahmoud Shahwani, 1st Lt. Shokut Yumni, 1st Lt. Dawoud Salman, 1st Lt. Omer Mouwafaq, Capt. Kasim Shoukki, Major Mahdi Rahhal, Capt. Muhammad Ali. Seated: Capt. P. Williams, R.A. (Artillery Adviser to the 'Iraq Army), Major Hussain Fauzi, Sq. Ldr. C. H. Keith, O.C. No. 6 (A.C.) Sqn., R.A.F., Major Faik, Flg. Off. J. H. Parkin (Artillery Co-operation Instructor).

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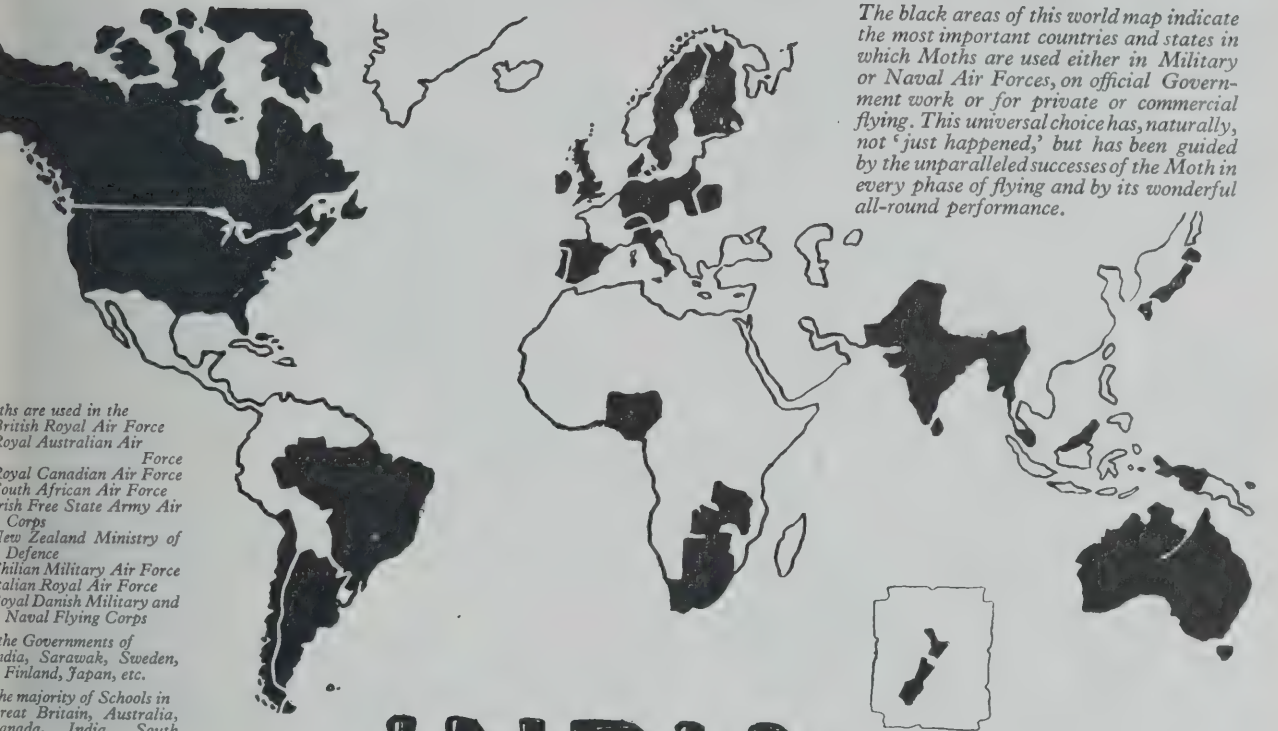

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he majority of Schools in
reat Britain, Australia, anada, India, South frica, Kenya, Sweden, ingapore, Switzerland, pain, etc.

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CLASS C.—*Flying Officers* : H. S. Eaton, J. H. C. Harrold, P. Wilson.

The service of the following officer has been extended for four years :—CLASS A.—*Flying Officer* : W. M. Shoomith.

The service of the following officer has been extended for two years :—CLASS A.—*Flying Officer* : J. McCosh.

Special Assessments.

The following officers and airmen have been awarded special assessments as shown on completion of a course of *ab initio* flying training at No. 4 F.T.S. :—

Special Distinction.—No. 363672 Cpl. E. C. W. S. Smith.

Distinguished Pass : Plt. Off. F. W. Murison, Plt. Off. G. E. E. Singleton, No. 363086 Cpl. R. Harding, No. 335349 L/AC. G. H. Wright.

The following officer has been awarded a special assessment as shown on completion of a course *ab initio* flying training at No. 2 F.T.S.—*Distinguished Pass* : Plt. Off. B. D. Nicholas.

Notations have been made in the official records of these officers and airmen.

The World Duration Record.

An attempt will be made to beat the World Duration Record in the course of the next few months.

The machine in which this attempt will be made is a new Fairey monoplane fitted with a Napier engine. No details of the machine are at present available.

The machine will be flown by two Service pilots—Sq. Ldr. Jack Noakes, A.F.C., M.M., and Flt. Lt. E. V. Major.

Sq. Ldr. Noakes was born at Margate in 1895 and enlisted in the R.F.C. in 1915. He learned to fly at Hendon on an L. and P. biplane and his Royal Aero Club certificate, No. 1092, is dated Feb. 20, 1915. He was given a commission from the ranks in January, 1917, and was promoted Flight Commander in July, 1917. On the formation of the R.A.F. he was appointed to a permanent commission with the rank of Flight Lieutenant and was promoted to be Squadron Leader in July, 1925. He was awarded the Air Force Cross in the King's Birthday Honours of 1919. After the Armistice he was appointed to the Experimental Section, Royal Aircraft Factory. In February, 1922, he was posted to No. 216 (Bombing) Squadron, Egypt, and in December, 1923, he was posted to the R.A.F. Depot, Middle East. In July, 1927, he was appointed to command No. 22 Squadron, a Unit in the establishment of the Aeroplane and Armament Experimental Establishment, Martlesham Heath. Sq. Ldr. Noakes is the inventor and original exponent of the art of crazy flying.

Flt. Lt. E. V. Major is a retired Lieutenant, R.N., who joined the R.A.F. with a short service commission with the rank of Flying Officer on November 10, 1923. He was posted to No. 99 (Bombing) Squadron in June, 1924, with the honorary rank of Flt. Lt. In 1926 he underwent a course at Calshot and became a Qualified Air Navigation Officer. He was posted to No. 2 Flying Training School, Digby, in August, 1926. He was promoted to be Flight Lieutenant in July, 1928.

Group Captain C. D. Breese.

Group Captain C. D. Breese, A.F.C., whose appointment to the R.A.F. Base, Gosport, pending taking over command, is dated Sept. 3, 1928, was born in 1889 at Carshalton, Surrey, and educated at Magdalen College School, the R.N. Engineering College, Keynham, and the R.N. College, Greenwich. He entered the Royal Navy as an Engineer Sub-Lieutenant in 1909 and was promoted Engineer Lieutenant in 1911. He learned to fly at Upavon on a Maurice Farman biplane, and his Royal Aero Club certificate No. 654 is dated Oct. 16, 1913. In July, 1914, he was appointed to the R.N.A.S. as Flight Lieutenant, and was promoted to be Flight Commander in May, 1915, and Squadron Commander in December, 1916, and Wing Commander in December, 1917. He served with the R.N.A.S. in the Dunkirk Area from January, 1915, to December, 1916, and again from February to April, 1917. In April, 1917, he went to France, where he served until June, 1917. On the formation of the R.A.F. he was appointed Lieutenant-Colonel, and became Wing Commander in August, 1919. He was awarded the Air Force Cross in the King's Birthday Honours for 1918 for distinguished service. After the Armistice he was posted to India, and in March, 1921, was appointed to command the Aircraft Depot, Karachi. In March, 1924, he was restored to the Home Establishment and posted to H.Q. No. 3 Group, Spittlegate. In January, 1925, he was appointed to H.Q. Staff, Halton, for Technical Duties. He was promoted to be Group Captain on July 1, 1928. Group Captain Breese was treasurer of the R.A.F. Rugby Union from 1925 to 1927.

Vacancies in the Auxiliary Air Force.

No. 601 (County of London) (B) Squadron have a few vacancies for skilled men in the fitting, rigging and allied trades. There are also one or two vacancies for N.C.O.s i these trades. If any ex-R.F.C. or R.A.F. N.C.O., or ar skilled men in the trades referred to wishes to make i quiries as to joining this Squadron he should communica either in person or in writing to the Adjutant, Town Hea quarters, No. 54, Kensington Park Road, Notting Hill Gat

This Squadron is run on the Territorial principle and w one of those which did so well during the recent Air Exercise

R.A.F. SPORTS AND PASTIMES.

The Inter-Services Swimming Championship

The inter-Services swimming championships were held Halton on Sept. 4, when the results were :—

100 *Yards.*—Telegraphist Goodman (R.N.), 1; Sapper May (R.E.), Lieut. Havers (R.N.), 3. Time, 63 3-5 sec.

100 *Yards Back-stroke.*—B.Q.M.S. Rex (R.A.) (holder), 1; Bombard Barnes (R.A.), 2; Seaman Adams, 3. Time, 1 min. 19 sec.

220 *Yards.*—Lieut. Brown (R.A.), 1; Telegraphist Goodman (R.N.), Sapper May, 3. Time, 2 min. 47 1-5 sec. (a new record).

Diving.—AA. Watson (Halton), 1; AC. Richards (Uxbridge), Artificer Apprentice Taylor (R.N.), 3.

440 *Yards.*—Able Seaman Land, 1; Plt. Off. King (Uxbridge), Lieut. Havers, 3. Time, 6 min. 18 sec. (new record).

100 *Yards Breast Stroke.*—Pte. Rimmer (Army Service Corps (hold 1; Able Seaman Wadsworth, 2; Plt. Off. Westwood (Netheravon), Time, 1 min. 18 2-5 sec (a new record).

Relay Race.—Army, 1; Navy, 2; R.A.F., 3. Time, 4 min. 1 4-5 s

Plunging.—Midshipman Reed, 1; Sjt. Schofield (Royal Tank Cor 2; Sjt. McGinn (Henlow), 3. 64 ft. 5½ in.

Water Polo.—Royal Navy 6, R.A.F. 2; Royal Navy 3, Army 1; Ar 3, Royal Air Force 1.

The Royal Navy won the Cup presented by the Presid of the Army Swimming Association by 82 points. The Ar were second with 78 points and the R.A.F. third with points.

The R.A.F. Football Association.

Flg. Off. D. A. W. Sugden, R.A.F. Depot, Uxbrid Middlesex, has been appointed hon. secretary of the R.A Football Association with effect from Aug. 1, 1928, and correspondence in connection with the association should forwarded to him at that address.

The R.A.F. Officers' Golfing Association.

The autumn meeting and championships will be held Sept. 26, 27 and 28 at Hunstanton Golf Club.

The competitions are open to all officers on the ac service list of the R.A.F. who are members of the associa and all retired officers who have been members of the a ciation and still retain their membership. The R.A Officers Golfing Association Championship is open to members of the association.

The entrance fee will be £1 1s. for the three days 10s. 6d. for the first day and 6s. each for the second third days.

All entries, together with entrance fees, must reach hon. sec., Sq. Ldr. C. H. Hayward, Yew Tree Lodge, ford, Middlesex, not later than noon on Sept. 19.

THE EVILS OF POLITICS.

A warning to young officers not to interest thems in politics is provided by the sad fate of Major Sarmen Beires, one of the best Service pilots in Portugal, who tinguished himself by a flight from Lisbon to Macao and in 1924 and from Lisbon across the South Atlantic to Brazil, in 1926.

During the latest revolution in Portugal (at any rat to the time of writing) which revolved on July 20, officer foolishly signed his name to a proclamation ag the existing Government. This was doubly foolish s that he stood in very well with the said Government. revolution failed dismally, and, knowing that the Go ment would view with disfavour those who had de themselves against it, he eloped to Spain in a Vickers paraiso where, so far as is known, he still remains, he has gravitated towards Paris.

Thus mis-placed ambition may ruin the promising of an officer with a brilliant record. Though in this co revolutions only occur at intervals of several hundre years, there is always a possibility of officers mixing selves up in the internal politics of their Service. An is very nearly as bad as mixing in national politics. best thing an officer can do is to stick to his job and promoton.

W.J.MILES. 1927.

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ON THE ORLY MEETING.

On Sunday, Sept. 9, there began at the Orly Aerodrome, about half-an-hour by car to the South of Paris, the Competition for Light Aeroplanes, organised by the *Association Française Aérienne*. This is the great event of the year in French Civil Aviation, and one is sorry that it has not been supported by larger entries, for the organisers have set about their work in such a sporting spirit and with such friendliness for all the competitors and with such enthusiasm that their meeting deserves to be of greater importance than it is in fact.

Entries had been received from Holland and from Czecho-Slovakia, but the Czech machines did not arrive, and the Pander from the Rotterdam Club came in after 15.00 hrs., the closing-time for the "presentation" of competing machines. There were no Italian entries. So the competitors are all French, English and German. Incidentally it was good to see the friendly relations between the Committee and the sporting German pilots and their mechanics.

A MATTER OF CORRESPONDENCE.

While giving full marks to the organisers of the meeting for their enthusiasm and friendliness, one is compelled to criticise their office-work. Everyone—competitors and press alike—complained that they could not get answers to their letters from the bureau of the competition.

One can confirm this personally, for though THE AEROPLANE wrote weeks ago for passes and badges and so forth, nary a word came in reply. But, by way of recompense, when one arrived on Sunday (in the excellent care as diplomat and automobilist of Capt. Cyril Turner, late R.F.C. and Bat Co., and now the Fairchild representative in Europe) one found the Committee ready to expend all their energies for the benefit of foreign competitors and visitors.

Still, after all, in their slackness over correspondence the Committee were no worse than some firms in the British Aircraft Industry,—apropos which Mr. Harold Perrin, Secretary of the Aero Club, summed up the situation admirably. Several of us were talking over this very subject of English commercial slackness, when the name of a well-known Australian who is over here on business was mentioned. "Well!" said Harold the Hearty, "You know why *he* came over, don't you? It was to get the answers to his cables."

As an antidote to that, perhaps one had better quote a quick saying which seems to explain some of the success of the de Havilland people. A business man whose experience includes most of Europe, as well as the United States from the Atlantic to the Pacific, said,—"If you go into St. Barbe's office to sell him something, you come away finding that you have left a deposit for a new Moth." In the words of the troops,—that's the stuff to give 'em. But it is by the way—so let us to our meeting.

Incidentally, H. the H. flew over from London on Saturday evening in an Argosy, which had to land for petrol at Abbeville, and arrived at Le Bourgêt in the dark, owing to a strong South-East wind,—and he enjoyed it. So much for those maligners who say that the Secretary of the Royal Aero Club does not fly.

THE COMPETITORS.

Owing to the lack of such mere accessories as programmes, or other lists, the only way of discovering what was competing was to go round the big shed in which the mac
were housed and make an inventory of what was t
Some machines had numbers on them, some had not.
were evidently not competing,—at any rate one woul
sorry for their pilots of they did. But just for joss one
them all down, as they provide a kind of review of F
light aeroplanes.

First on the non-existent programme came a whole
of Caudrons.—No. 1, F-AITI, a monoplane with a sm
cylinder Salmson: No. 3, F-AIPV, a biplane with a b
5-cylinder Salmson: No. 4, F-AIRA, a monoplane with
cylinder Salmson: No. 5, F-AIQG, a monoplane with
cylinder Anzani: No. 6, F-AIUC, a monoplane with
cylinder Anzani: and F-AHFE, probably going to be N
a monoplane with its engine wrapped in waterproofs.

The British representatives were (or are) a mixed
There was Flt. Lt. Comper's Felixstowe biplane, wi
Bristol Cherub. There was Mr. Broad's Moth, YK, w
Gipsy. There was Mr. Percival's Avian, YR, with a C
There was Mr. Stack's Avian, AT, with a Cirrus and
pilot's nice new type of cowling. There was an Avian,
flown by Lady Heath (lately Mrs. Eliott-Lynn), also w
Cirrus. And there was Flt. Lt. Soden's Moth, OU, w
Genet, flown by Fl. Off. Atcherley,—not in the compet
but flown with marked effect, as will appear hereafter.

Germany was represented by two Klemm low-wing r
planes,—D.1450, with a 2-cylinder Daimler engine,
D.1357, with a little 9-cylinder (40 h.p.) Salmson. Mac
of this make were described in THE AEROPLANE last
They have put up wonderful performances, thanks to
skill and daring of German pilots, flying over the Alps
all round Europe. And under the conditions of the
petition they may do well. But one cannot consider
as serious aerial vehicles,—which is what light aerop
should be. They are too slow to be useful in bad wea
They are too flimsy to stand regular knocking about.
the big span of their low wings makes them awkwa
handle.

THE FRENCH MACHINES.

One of the most interesting French machines is N
which bears the designation "Avions Guerchais No. 0,0
showing that though this is his first effort M. Guerch
ambitious and confident, and sees his products running
thousands. The machine is a 2-3-seater cabin mono
with a ply-wood wing,—and looks rather like a baby Fo
The engine is a 45 h.p. 6-cylinder Anzani, so one doe
think much of its chances. With a Gipsy engine it
do well.

Another interesting, if unpromising, machine is the P
Nessler. This is a fairly normal monoplane, but the c
surfaces,—ailerons, elevators, and rudder have a kind o
plementary trailing edge with geared-up control-leve
that whichever way the main surface goes the supple
ary surface goes a bit further, so making a kind of
of the whole surface, and so, the designer hopes,
better control. Personally one thinks that the advanta
any, are not worth the extra weight. The machine
3-cylinder Salmson of 12 h.p.,—so it is not exactly
powered anyhow, and its chances in the *Tour de Franc*
tion of the competition next week-end seem small.

Another of M. Peyret's efforts is the "Triavion Albess

AT ORLY.—Mr. Broad and his Gipsy Moth (Gipsy engine) outside the big shed in which all the competin machines were stored. The eye of faith may see in the group Mr. and Mrs. Harold Perrin and Capt. and Mrs Cyril Turner. The "parcel of washing" on the side of the machine is a spare airscrew.—(*" Aeroplane " photograph*

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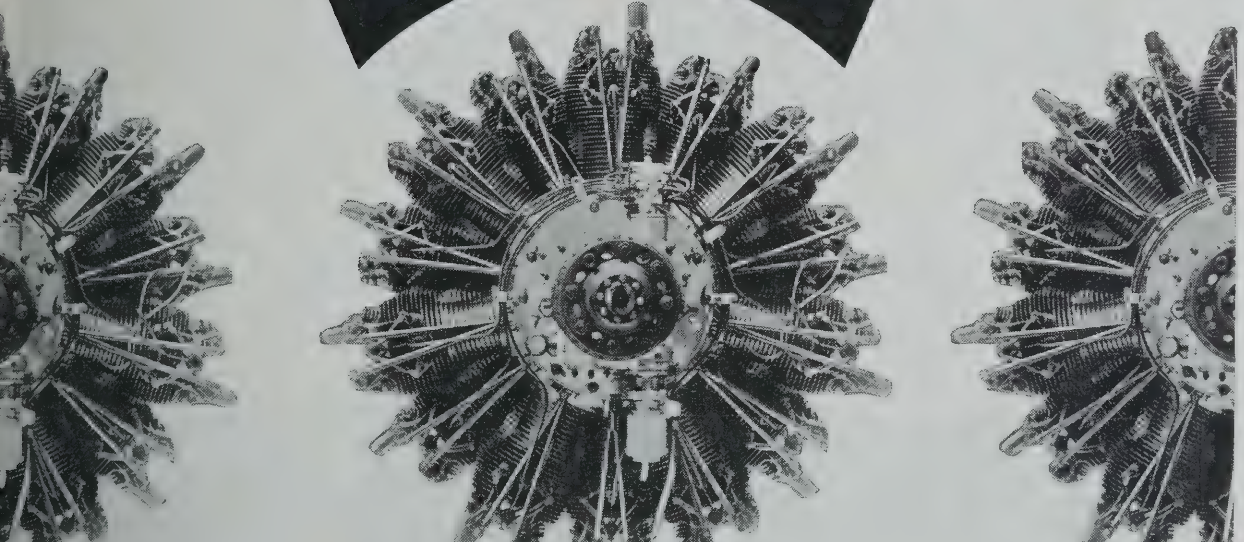

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which bears the registration letters F-AIKE,—perhaps appropriately. It is very like the glider on which the late M. Maneyrol performed so wonderfully at Itford Hill in 1922. That is to say, it is a tandem monoplane with the second pair of wings aft of the cockpit, and about half way towards the quite normal tail-unit. As a flimsy glider, to sit on top of a chimney of air blown by half a gale against the face of a cliff the arrangement may have its merits. But it hardly seems to be a dangerous competitor in this contest—at any rate not to other entrants. And, even if it were an efficient aeroplane, its 6-cylinder Anzani could not be expected to haul it all round France.

Of all the new French machines the best liked is the Albert monoplane, F-AIVA, with the 40 h.p. 9-cylinder Salmson. It has a tapered all-wood wing very like the once-boomed Alula, and a split undercarriage of hickory, in which the radial sprung struts, which carry the wheels, look like stream-lined hockey-sticks. The tiny engine runs like a sewing-machine,—but one does not know how long it will stay running. And the machine, which is very light indeed and would doubtless cause acute mental indisposition to the Stress Department of the Air Ministry, gets off the ground like a scalded cat. It seems to be difficult to land, but that may have been owing to the strangeness of the pilot.

No. 16, F-AFGA, and F-AFGF, both with 6-cylinder 45 h.p. Anzanis were (are?) aged Potez VIII.s., As one of them had a number, presumably they are competing, though there seems no good reason why,—as they show no advance on the ideas of ten years ago.

Also in the shed were two small ancient Farman *Type Sport* biplanes (with 6-cyl. 45 h.p. Anzanis), of the kind that used to be known as the "David," as opposed to the Farman "Goliath." One was lettered F-AICP, and the other had no lettering. They called up tender thoughts in the memory of Mrs. Cyril Turner, who as Andrée Peyre, *Aviatrice,* once persuaded one of these little chicken-coops up to 14,000 feet (official) in California, and captured the feminine height record. One hardly fancies that either of these genuine antiques will compete.

Another unlikely competitor is a side-by-side monoplane, about as wide as a Bluebird-and-a-half and just about as deep. It looks like a washing-tub with wings and a tail, and as it is painted bright blue it seems to be suffering from an over-flow of Reckitts. It has a 6-cylinder 45 h.p. Anzani, and probably no performance,—which may account for its being without either registration letters or a maker's name.

Finally there is an old and small single-seat biplane with "*L'Icare*" painted on its sides and a 3-cylinder Anzani on its nose. Its workmanship suggests that its name might be justified if anyone flew it.

ODIOUS COMPARISONS.

Taking them all round one was not impressed by the French light aeroplanes. None of them approached our Moths and Avians and Widgeons and Bluebirds and Spartans in design or construction, and they certainly have not an engine to touch the Cirrus or Gipsy or Genet.

One never knows what may happen in a competition. All our machines may be put out by minor troubles, such as defective ignition or choked pipes or something equally futile. Most of the French machines may survive al tests, including the Tour of France next week-end. A the system of awarding marks for useful load carrie which a very light machine scores in proportion to its lightness—one or other of the flimsily-built French aerop may get away with all the prizes. But there is no doub builds the best light aeroplanes.

It is a great pity that other foreign machines did not or enter. The Koolhoven monoplanes would have gi good impression. One would have liked to see a Poncel the new Goudentops machine from the Sabca Works. the Avias from Prague would have added interest. Still, ought to be some useful information to be got out of th or twelve days' flying which the competitors have to do.

FIRST ARGUMENTS.

Sunday was only the Day of Reception, for the presen of papers relating to the machines, and for the weighi them. There was no official flying, but the proceedings amusing.

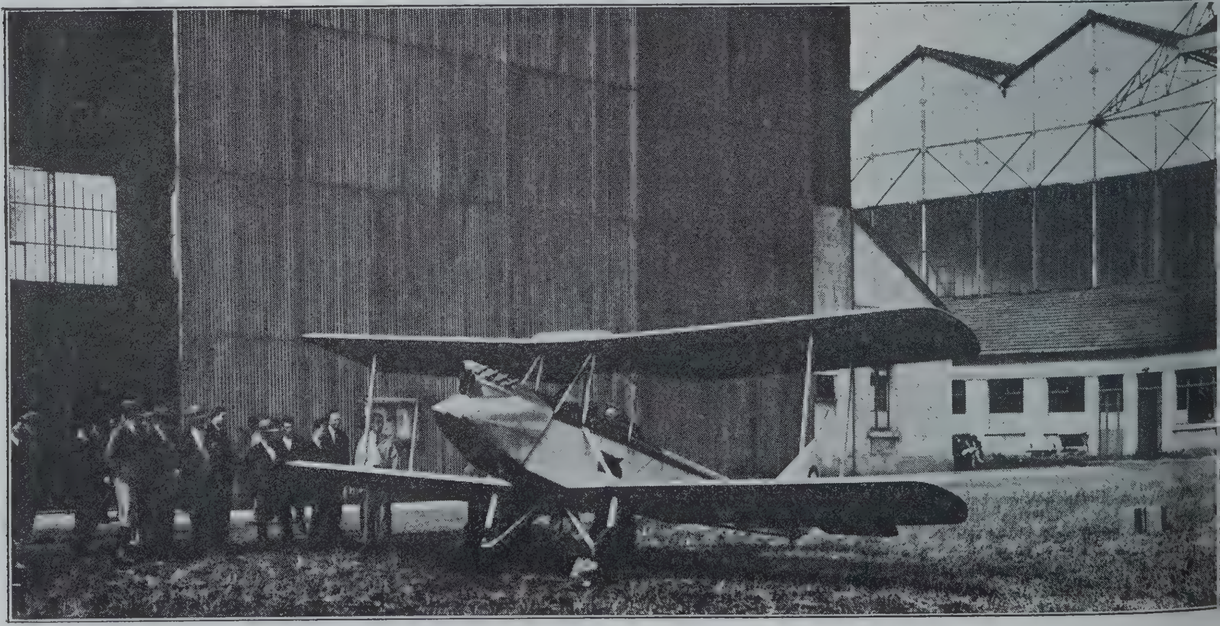
Almost the first thing we heard was that the Irving chute, not having been "homologated" by the French S *Technique,* no marks would be given for carrying 'chu that make. And, as certain English competitors had I with them, naturally there was the makings of an argu But there was the rule, so the Irvingites just had to b French parachutes to earn the marks, or go withou marks, and either carry their Irvings for safety's sak leave them behind and carry extra "useful" load and a few marks that way.

No marks were allowed by weight for carrying approved parachute, as it was not reckoned as useful Lead weights were reckoned as useful, as they mig reckoned as extra petrol or as an extra fat passenger. sensible thing in the rules was that there had to many cubic centimetres of space *in the machine* for each gramme of such useful load carried. That stopped the ing of marks by carrying chunks of lead when there w real room in the machine.

So far as one could gather, the French Government e of the *Section Technique* have no objection to the Irvi a parachute. Their quarrel with it is that there is no release gadget in the harness, to allow the user to l parachute go so as to prevent himself from being dr after landing. And apparently our experts argue that better to be dragged than to take the chance of pullin quick-release lever by mistake before landing. You your money and takes your choice."

KINDNESS AND COURTESY.

That the Committee were not hide-bound by their own was shown by an incident which happened to Fl Comper. He took the Felixstowe biplane out for an on Sunday to test his get-off distance, and just after l the ground his magneto cut out. He had to do a bump ing to avoid running into a paling, and broke an underca fitting. The machine could not be got back to the sh fore 15.00 hours to be officially accepted. But, beca was there earlier in the day, they accepted it, and over they weighed it in its damaged condition befor other, and then sent it into another shed, together



AT ORLY.—One of the three Avros (Cirrus engines). The photograph gives some idea of the size of Frenc aerodrome buildings.—("*Aeroplane*" *photograph.*)

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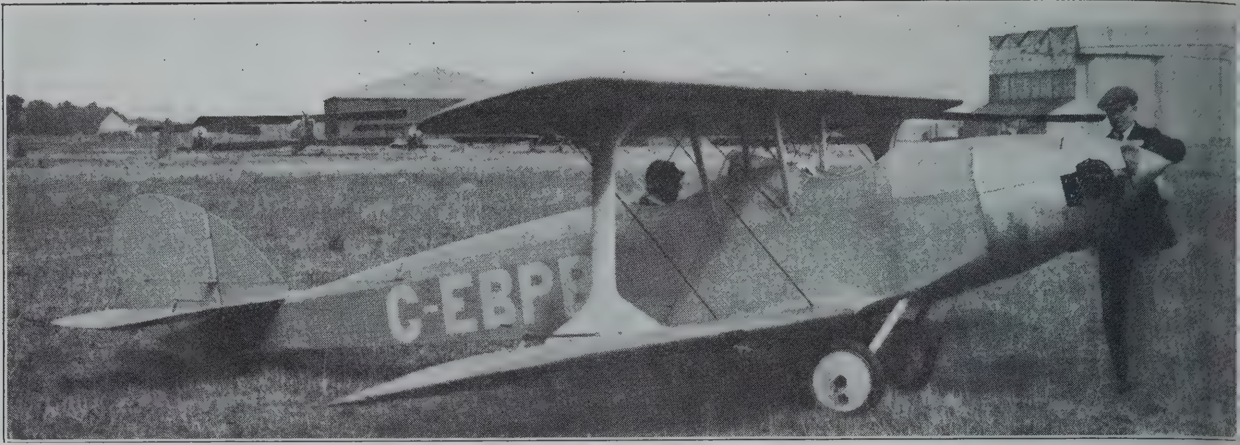


THE HOME-MADE AEROPLANE.—Flt. Lt. Comper and the Felixstowe C.L.A.4 (Cherub engine) at Orly. The Fre Military sheds and some old Bréguets and Moranes may be seen in the background.—(*" Aeroplane " photograph.*)

workmen and tools to help Flt. Lt. Comper to repair it in time for the flying tests on the Monday.

The officials were as keen as any of us to get the job done in time and were most sympathetic over the mishap. Their attitude was, one imagines, like that of a charming Anglo-Frenchwoman, who said how sorry she was for " the nice man with the home-made aeroplane."

AN AFFAIR OF CUSTOMS.

Incidentally, why do English pilots going to Paris take such queer routes? Flt. Lt. Comper, starting from Lympne, landed at Abbeville, which is not a regular Customs station. So much time was taken in getting *douaniers* out from the town that he had to stay the night there. Mr. Broad chose to land at Berck, an emergency landing ground for air-liners and a permanent ground-base for thousands of consumptives. He arrived at Orly about midday on Sunday.

Lady Heath (lately Mrs. Eliott-Lynn), ignoring such ordinary things as Customs, flew direct to Orly on Saturday. So on Sunday morning, after a lot of telephoning, she had to fly to Le Bourget to get her machine and belongings past the *Douane*. The Customs people were really very good over the incident, because they might justifiably have confiscated the machine and have held it up till a fine had been paid.

And all the time there is that nice little aerodrome at St. Inglevert, sitting on the top of the hill between Calais and Boulogne, where any aviator from this side can clear the Customs and be free thereafter to land anywhere in France. It is so simple, as Mr. Drage says.

SHOWING HOW.

During the early afternoon Mr. Atcherley gave a treat to the few hundreds of people who had come to see the machines accepted. He brought out Flt. Lt. Soden's Genet Moth and proceeded to do a little Pageant flying, rolling low down several times and then doing an outside loop. Twice the machine failed to get over the top of the loop, and, after hanging vertically tail-down for an emotioning second or two, fell over sideways with a flick that must have shaken the fittings fairly well. The third time it came over the top right side up, and the crowd, composed entirely of people who really knew about flying, cheered enthusiastically.

Few there, except the English, who knew the regular performance of the C.F.S. Moths, had ever seen such flying, and the French were generous in their expressed admiration.

M. Detroyat, the best acrobatic pilot in France since death of the lamented M. Fronval, came along afterwards our old friend M. Bajac as interpreter, and had a long about it with Mr. Atcherley. He was particularly intere in the harness which the Moth pilots use to keep themse from falling out when doing the outside loop.

Actually Mr. Atcherley's performance was not up to his form, for the engine has done a heap of flying lately, was in fact only at Orly on its way back from Spain, whi it had taken Flt. Lt. Soden and Mr. Atcherley and bag on a holiday tour. The machine is the very first G engined Moth ever made, and has not a performance e to that of the C.F.S. Moths. So altogether it was b than it looked,—and to a stranger it looked pretty start

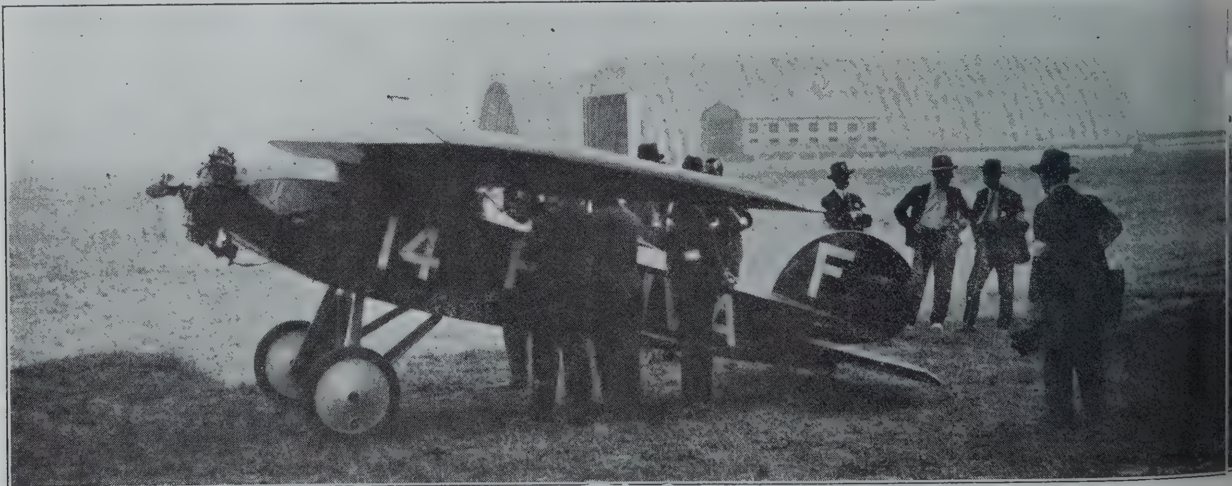
Mr. Walter Varney, who runs the Varney Air Mail Line Seattle to Salt Lake City (one of the first air lines to a profit in America) happened along at Orly on Sunday like the old lady who saw the giraffe for the first time, that he didn't believe it. And he is a pretty good judg flying too.

Incidentally, Mr. Varney says the air-mail lines in States are doing great business, as the American publi now wide awake to the value of the air services. One qu to him the remark of a correspondent in the States, wh a letter which came last week, said that the air mail tractors are making so much money that they all feel they ought to be in jail. He would not admit that bus was quite as good as that, and he seemed like a man a clear conscience.

THE WEIGHING-IN.

Soon after Mr. Atcherley had done his show the sky b clouding over, after a blazing hot morning, and in qu short time a storm of wind and rain swept over the drome, and that put an end to any more joy-riding afternoon. Everybody retired into the big shed for the se job of weighing-in the machines. The result was hilariously funny, and if the officials of the *Associ Française Aérienne* had not been so extraordinarily natured there might have been something like a row

The weighing was done in three pushable, if not ex portable, platform weighing-machines, of that kind w balance-weight which slides along a horizontal lever Planks were put across two of them, and the wheels o



A NOVELTY.—The neat little Albert monoplane (Salmson engine). The overgrown Nissen huts in the back ground are airship sheds. —(*" Aeroplane " photograph.*)

planes were rolled up onto these planks. Then the tail e machine was lifted and the third weighing machine pushed under it, with an oil-drum standing on the plat- to carry the tail-skid so that the whole tail of the ine would be clear of the lever-arm. Then the weights ated on all three weighing machines were added up, he weights of the planks and the oil-drum were deducted the total and the result was the weight of the machine.

st of the machines were well under weight, so accuracy did not matter much except for purposes of marks in on to useful load carried. But the two Avros piloted r. Neville Stack and Lady Heath were over weight.

e pilots and mechanics promptly set to work to get t off. They removed the stub exhaust-pipes, and some- discovered quite a lot of bits and pieces which appar- they could do without,—though one imagines that de- rs of aeroplanes do not put anything into the machines they consider dispensable.

en all these bits and pieces were stripped off the ines they were weighed in again. Then it was found one of them which had been 5 kilogrammes (about 12 over weight was now 7 kilogrammes (about 16 lbs.) r weight. So the Avro crews began wondering how by ping about 12 lbs. weight of oddments off the machine had made of difference of 28 lbs. in the weight.

o the Avro representatives were certain that the machines been weighed in pounds before they left England and then well under weight. Somebody suggested that the rules which were used in translating pounds into kilo- mes must have been out of adjustment. Somebody else ested that the weighing-machines needed oiling. Some- else suggested that the sudden change in temperature, d by the storm which was then raging, must have in- ed the density of the metal in the machines and so had ased the weight. Another genius suggested that the ish air in the tyres must be heavier than the French air. e pilot, to get the last ounce of weight out of his machine, it out in the rain and ran the engine so as to pump all il out of the oil tank. Popular opinion seemed to be he had accumulated far more weight of rain in the it and on the planes and fuselage than the weight of at he had got out of the tank.

en there was all the fun of pushing the various machines to make room for the other machines to get at the ing machines. Everybody helped. And, of course, body got everybody else's machine into everybody else's But everybody was good-tempered, and really the e handling the machines were quite skilful in the way dodged wing-tips over rudders, and insinuated tail- s between the wings of biplanes, while the owners of ther machines stood with their tongues sticking out with ty.

wever, at last the great task was accomplished and of us, including Harold the Hearty and Mr. Broad, ed to Paris over half-dried slippery roads skilfully d by Cyril Turner in his Buick, he having apparently one of his old skill and address as a pilot since the when he did startling things on a Bat, and thereafter ered the graphic art of skywriting.

gencies of the press compelled one to return to London onday morning. But one hopes that the further doings y will be collated from various sources.—C. G. G.

ROUND THE EDGE OF GREAT BRITAIN.

Between Aug. 5 and Aug. 19, Col. the Master of Sempill made a 3,000-mile holiday trip round the coast of Great Britain and Ireland on a Blackburn Bluebird seaplane.

For some days prior to the start the Bluebird had been moored out on the Thames opposite the Houses of Parliament in company with the Short Calcutta.

On the first day Hartlepool was reached after a stop at Yarmouth for fuel. A sum of 3s. 2d. was paid to the harbour master at Hartlepool as "dock dues for entry into Hartlepool," this entitling the Bluebird to remain for 28 days.

On the following day the flight was continued up the coast over the Farne Islands and round North Berwick to the Firth of Forth and Musselburgh. Here the Bluebird was turned inland to the Gladhouse Reservoir some 800 ft. up in the hills north of Peebles, quite close to the house of the Lord Elibank.

From this base a series of flights was made mainly as visits to friends, the adjacent locks providing safe and convenient moorings for the Bluebird.

From Peebles the flight was continued to Aberdeen, where it was found that the harbour dues had increased to 3s. 6d. As far as Aberdeen Col. Sempill had been accompanied by his wife. But from here northward he flew alone, as the take-off in the prevailing wind was awkward.

From Aberdeen he flew to Thurso by way of Wick, Duncansby Head and John o' Groats. At Thurso a heavy swell was running which forced him to await until the next day before proceeding further.

From Thurso he flew round Cape Wrath, the extreme north-westerly point of Scotland, and down the wild and rugged west coast to Strome Ferry.

The next stage was from Strome Ferry to Belfast by way of Oban. At Belfast the Tourist Trophy Race was viewed.

From Belfast Col. Sempill flew to Wexford down the east coast of Ireland. From Wexford he flew across the St. George's Channel to St. David's Head, where the course was set for Lundy and Newquay, which was reached at dusk.

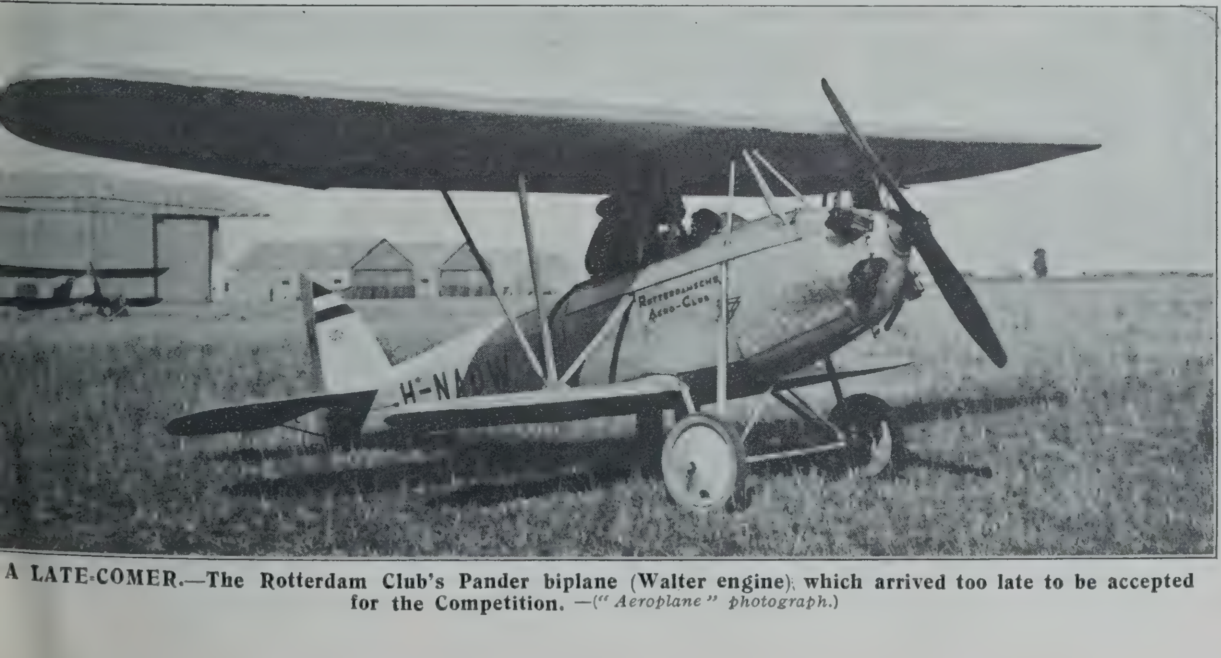
From Newquay the flight was continued across Cornwall over Truro to Falmouth, where all the ships and the town were lit up. This assisted in the alighting after dark.

On Aug. 19 Falmouth was left at 13.00 hrs. and after a detour in the direction of Land's End a course was set up the Channel against a head wind. Gravesend was reached at dusk and at Woolwich it was dark. After passing Chelsea the Bluebird was climbed to 2,000 ft. before leaving the river at Barnes to strike north to the Welsh Harp, where an alighting was made by the lights of the Wembley bye-pass.

The total distance covered was approximately 3,000 miles in just under 50 flying hours.

The Bluebird seaplane and the Genet engine gave no trouble whatsoever. A Fairey metal airscrew was fitted and this showed its advantage over the wooden type, particularly at Thurso, where the take-off was made in a heavy swell with water breaking over the floats and into the airscrew.

So far few facilities for seaplanes exist round the coast so that various ways of mooring and handling had to be improvised. Sometimes the Bluebird was moored fore-and-aft in a quiet portion of a busy harbour or sheltered creek of some Highland loch and sometimes in a more conventional manner, but the assistance that was needed to deal with these special conditions was always available.



A LATE-COMER.—The Rotterdam Club's Pander biplane (Walter engine), which arrived too late to be accepted for the Competition. —(*"Aeroplane" photograph.*)

A SPANISH SPORTSMAN'S TOUR.

On July 18 Senor O'Gara, piloted by Lieut. Haya, of the Spanish Royal Air Force, left Croydon on an Avro Avian (A.D.C. Cirrus II engine) which he had purchased for Madrid.

They reached Madrid on July 20 having flown by way of Paris, Tours, Bordeaux, Biarritz and Vittoria.

On July 29 they left Madrid for a tour of Europe under a veil of the most profound secrecy, and it was not until they arrived in London on what was practically the completion of the tour that anything was known about it in this country.

THE SPANISH AVIAN TOUR.—Lieut. Haya of the Spanish Military Air Service (in the cockpit) and Senor O'Gara, with the itinerary of their tour painted on the side of the Avro Avian.

From Madrid they flew by way of Barcelona and Marsei to Nice, a distance of 720 miles in 9 hrs. 10 mins.

On July 30 they flew from Nice to Pisa and on the follow day from Pisa to Rome, and on Aug. 2 from Rome Naples, where they stayed for several days.

On Aug. 8 they flew to Brindisi, on the following day fr Brindisi to Salonica, and on Aug. 10 to Constantinople.

On Aug. 18 they left on their return journey, flying successive days to Sofia, Belgrade, Bucharest and Vienna.

On Aug. 24 they flew to Prague and Berlin.

They left Berlin on Aug. 31, and flew to Dessau, wh they went over the Junkers works, and on the follow day flew from Dessau to Amsterdam.

On Sept. 2 they flew from Amsterdam to London. Here Cirrus II engine was taken down for inspection more a matter of routine and curiosity than necessity.

When they called at THE AEROPLANE office, with Ma F. P. Scott, of the Avro firm, the pilot, Lieut. Haya, had obtained special leave of absence to make this trip, sp very highly of the machine and engine and reported trouble whatever throughout the trip.

Senor O'Gara, the owner of the machine, is of I descent, his ancestor being an O'Hara,—and he looks like He took a certain amount of dual instruction during voyage and actually made his first landing at Amsterdam Sept. 1. On Sept. 7 they left London to fly to Paris Madrid.

On behalf of British Aviation one congratulates Spar Aviation on having such fine sportsmen as Senor O'Gara Lt. Haya to put up so fine a performance.—C. G. G.

A BRILLIANT AFRICAN FLIGHT.

On March 2, 1928, MM. Mauler and Baud, accompanied M. Cohendy, a cinematographer, left Le Bourget on a Cauc 128 biplane (120 h.p. Salmson engine) to fly to Cape T and back.

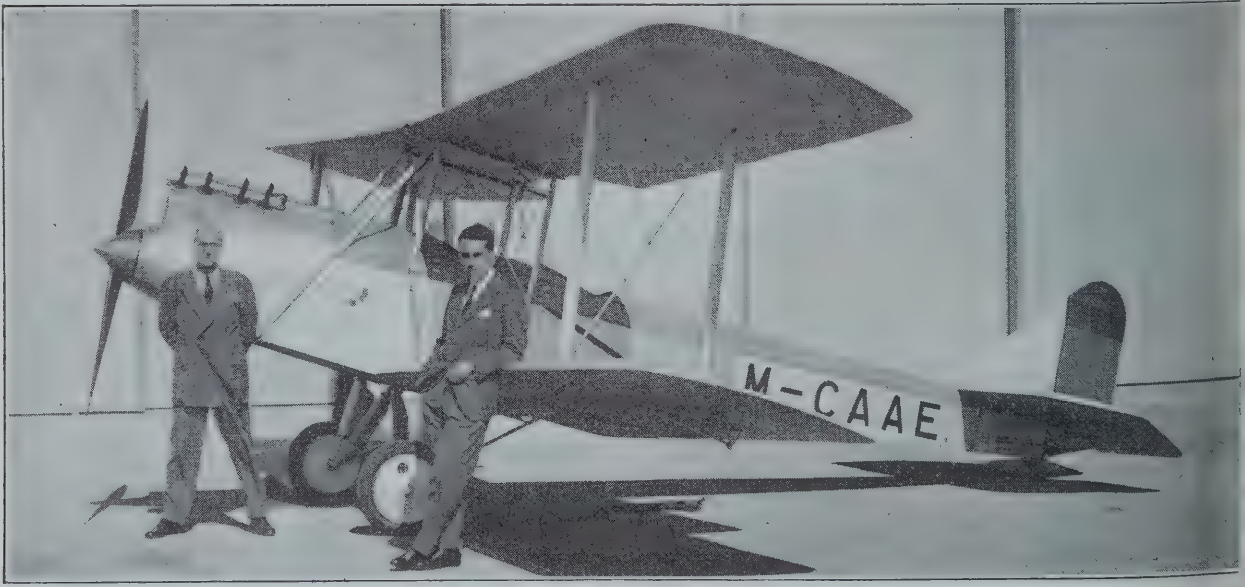
Their route followed the west coast of Africa by way Rabat, Casablanca, Dakar, to St. Louis, at the mouth the Senegal River. Thence they followed the Sen River down to the Ivory Coast.

From here they again followed the Nigerian and Fre Equatorial African coast to Boma at the mouth of the Con At Boma, the cinematographer left the party to attach h self to the entourage of H.M. the King of the Belgians.

MM. Mauler and Baud continued their journey by fol ing the course of the Congo River to Albertville, wh they flew by way of Broken Hill, Bulawayo, Johannesb and Port Elizabeth to Cape Town where they arrived July 3.

On July 21 they left the Cape on their return journey covered a different route by way of Port Nolloth, Beng and S. Paulo de Loanda to Boma. They then flew to L ville, Forcados, Accra, Grand Bassam, Bamako, and Daka Casablanca.

There they applied for official permission to fly Mauretania, but in view of the attitude of the natives, at the moment are holding as hostages two French p who had been unfortunately forced to land on the Spa African coast, this permission was refused. Neverthe



THE SPANISH AVIAN TOUR.—The Avro Avian (A.D.C. Cirrus II engine) on which Senor O'Gara and Lieut. Haya flew round Europe. Senor O'Gara is standing in front of the nose, with Lieut. Haya on the right against the wing.

DIEU ET MON DROIT
BY APPOINTMENT
TO HIS MAJESTY THE KING

INDIA TO ENGLAND IN 4½ DAYS

Record Flight on CASTROL

Capt. C. D. Barnard landed at Croydon at 8.10 p.m. on Thursday, September 6th., having left Karachi at dawn on the previous Sunday. His Bristol "Jupiter"-engined Fokker monoplane "Princess Xenia" was lubricated with Wakefield CASTROL.

The fastest previous flight between England and India was made by Mr. Bert Hinkler in February, whose "Cirrus"-engined Avro "Avian" also was lubricated with Wakefield CASTROL. He reached Karachi in seven days in the course of his wonderful 15½ day flight to Australia.

So continues the unbroken run of CASTROL achievement! Follow the example of the Experts and safeguard your engine by using Wakefield CASTROL, as

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"AMATEUR T.T." ROAD RACES

Isle of Man

Senior Race

FIRST	SECOND	THIRD
Norton	Sunbeam	Sunbeam

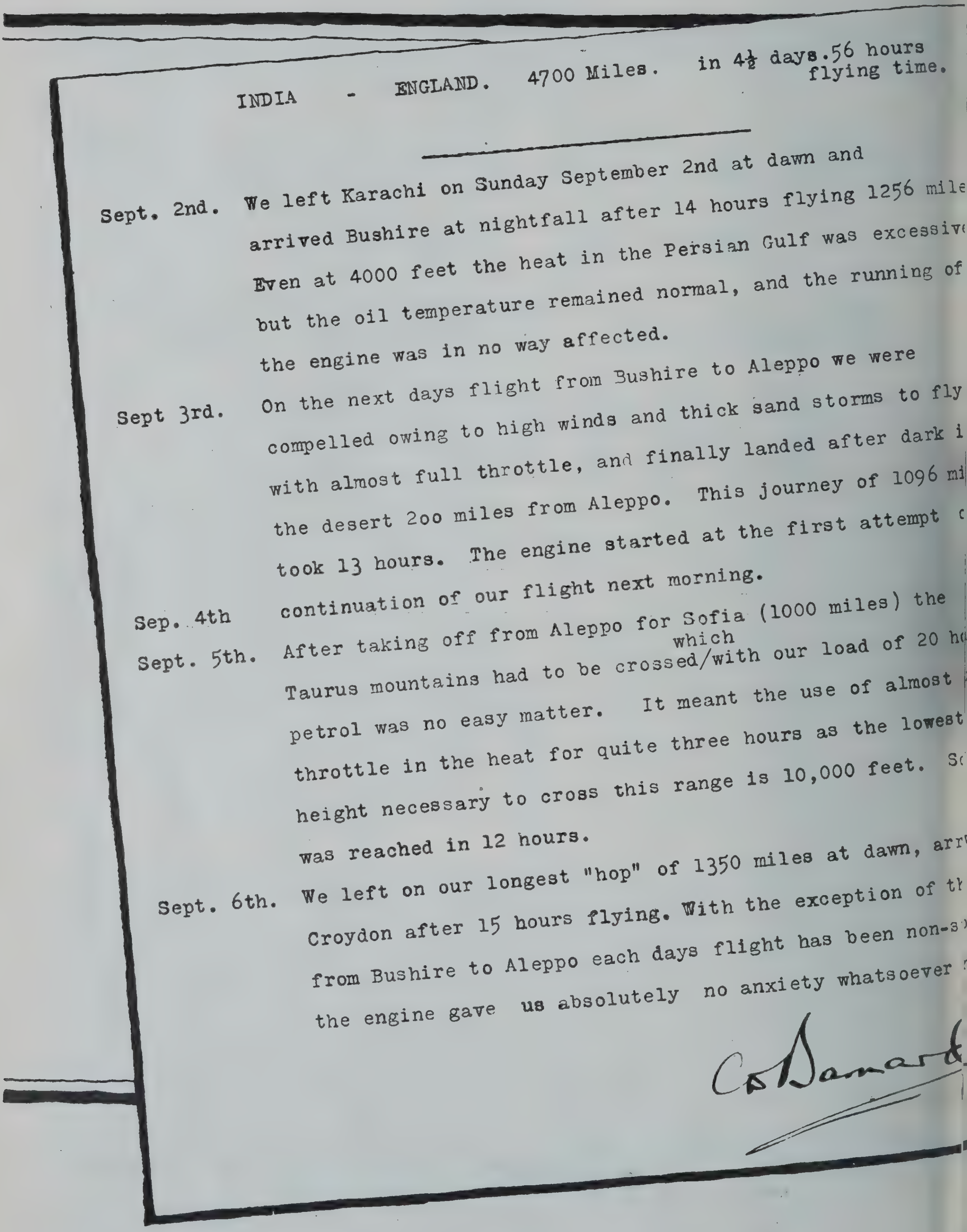
—won at 67.9 m.p.h. and record lap at 71 m.p.h. breaking all records for the course.

Junior Race

SECOND	THIRD	FOURTH
Velocette	Velocette	Sunbeam

—also Fifth and Sixth used

CASTROL



INDIA - ENGLAND. 4700 Miles. in 4½ days.56 hours flying time.

Sept. 2nd. We left Karachi on Sunday September 2nd at dawn and arrived Bushire at nightfall after 14 hours flying 1256 mile Even at 4000 feet the heat in the Persian Gulf was excessiv but the oil temperature remained normal, and the running of the engine was in no way affected.

Sept 3rd. On the next days flight from Bushire to Aleppo we were compelled owing to high winds and thick sand storms to fly with almost full throttle, and finally landed after dark i the desert 200 miles from Aleppo. This journey of 1096 mi took 13 hours. The engine started at the first attempt

Sep. 4th continuation of our flight next morning.

Sept. 5th. After taking off from Aleppo for Sofia (1000 miles) the Taurus mountains had to be crossed which with our load of 20 h petrol was no easy matter. It meant the use of almost throttle in the heat for quite three hours as the lowest height necessary to cross this range is 10,000 feet. S was reached in 12 hours.

Sept. 6th. We left on our longest "hop" of 1350 miles at dawn, arr Croydon after 15 hours flying. With the exception of th from Bushire to Aleppo each days flight has been non-s the engine gave us absolutely no anxiety whatsoever

C D Barnar

DIA TO ENGLAND IN 4½ DAYS

WITH A "Bristol" JUPITER ENGINE

-Jupiter machine with which the flight was made.

"The fastest previous air journeys between England and India were those of the American airmen, Brock and Schlee who, in September, 1927, flew from London to Karachi in seven days, and of Mr. Bert Hinkler who covered the distance in the same time last February. By a fast mail steamer the journey occupies three weeks."

DAILY MAIL, Sept. 7th, 1928.

istol" Jupiter is designed and manufactured by
RISTOL AEROPLANE CO., LTD.,
—BRISTOL.

Capt. C. D. Barnard.

Flying Officer E. H. Alliott.

they left Casablanca on Aug. 29 at 06.30 hrs. and flew direct to Malaga in Spain, where they arrived at 13.10 hrs.

On Aug. 31 they flew from Malaga to Barcelona and on the following day, reached Toulouse after a stop at Perpignan for Customs clearance. Thence they flew to Paris in easy stages.

The expedition was promoted by the Paramount film company and the *Petit Parisien* newspaper. No effort was made to break records or even to adhere to a strict itinerary. The route followed was one new to African air travellers, as naturally they desired to touch at as many French African possessions which are grouped down the West Coast, as possible. The total distance covered was approximately 21,750 miles.

This is a particularly brilliant flight. It was done in a machine of only 120 horse power, and followed a route that is not plentifully besprinkled with aerodromes. It was sensible in that, though it involved danger, it was not senselessly dangerous. And it was useful, as it showed thousands of people in Africa the practicability of air transport, while at the same time proving to the millions of readers of the *Petit Parisien* how easily the French African possessions can be reached.

MM. Mauler and Baud deserve the acclaim of their countrymen far more than do those aviators who have been made heroes for useless and dangerous flights. And they deserve the gratitude of all concerned with practical air transport.

AUSTRALIA—ENGLAND.

On Sept. 9 Mr. Keith Anderson left Sydney on a Bristol Tourer biplane (Siddeley Puma engine) in an attempt to fly to England.

AN IMPENDING REORGANISATION IN FRANCE.

The death of M. Bokanowski, Minister of Commerce and Secretary for Aviation, in an aeroplane crash at Toul on Sept. 2 has been made the occasion for much public criticism of the present state of French Aviation, both Military and Civil.

This very regrettable accident has so invigorated the agitation which has for some time been carried on in favour of the institution in France of a separate Air Ministry that the Cabinet at a meeting held on Sept. 5 decided to create such a ministry.

Various rumours as to the choice of the head of the new Ministry are current. Naturally the names of M. P. E. Flandin and of M. Laurent Eynac, each of whom has acted successfully and for long periods as Under Secretary of State for Air, have been mentioned as possible Air Ministers. In addition the names of M. Tardieu and M. Dumesnil have been suggested as probable occupants of the post.

At the moment, however, the only definitely ascertainable fact is that M. Leygues, Minister of the Marine, has been appointed acting Director of Civil Aviation.

The scheme which has now been adopted is said to provide that the Minister for Aviation shall have sole and complete control of all matters affecting Civil Aviation, and shall be responsible for the organisation of aircraft supplies for the Army and the Navy. The scheme thus provides for a body which corresponds rather more to the British Air Board which preceded the formation of the Royal Air Force and the Air Ministry than to the present British Ministry.

The Ministry of Aviation is apparently to have some sor of say about Army and Navy expenditure on Aerial Services and for this purpose will have military and naval officer attached to it. Unless it is given fairly complete contro over the organisation of the actual Air Services, however, i is difficult to see that the new arrangement amounts to ver much more than the erection of a separate ministry to control the *Service Technique et Industriel de l'Aéronautique* which at present plays the part in France of our own A.I.D and Airworthiness Department on behalf of both the fightin services and Civil Aviation.

Under the existing system there has undoubtedly bee a total lack of co-ordination as between the Army and th Navy over aircraft supplies, and the *Service Technique e Industriel de l'Aéronautique,* which is neither directly responsible to either service nor directly interested in th actual use of the matériel passing through its hands, appear to have caused vast annoyance both to the builders and th users of aircraft.

It is, however, very doubtful whether the admittedly unsatisfactory condition of the French Aviation Services, mil tary and civil, in regard to matériel, is due less to the bodie responsible for the original production and inspection c aircraft than to the very haphazard methods current i France for the maintenance of machines and engines i service. If the new Air Ministry does anything to improv French standards of maintenance it will justify its existence

MR. HARRY SPENCER.

On Sept. 9 Mr. Harry Spencer, the senior member of th firm of Spencer Brothers, balloonists and balloon manufacturers, was killed by falling from the roof of a house a Rugby.

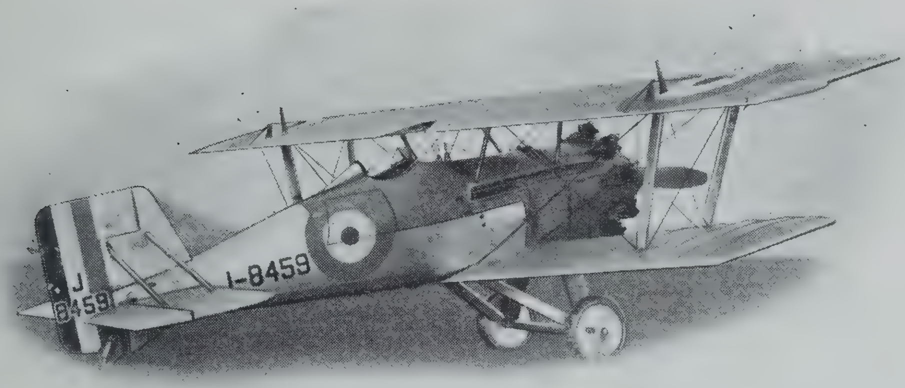
Mr. Percival Spencer, son of the deceased, made a balloo ascent from the grounds of the Hospital of St. Cross, as par of a festival for the raising of funds for that institutio After being in the air for a few minutes, the balloon, weighe down by water from a heavy shower of rain, fouled the roo of one of the houses of Rugby school, and its rigging becam entangled with the chimney pots.

Mr. Percival Spencer was uninjured, and with the aid c the police was able to descend safely to the ground. Hi father then ascended to attempt to disentangle the balloo and salve it, was apparently overcome by gas, slipped, rolle down the roof and fell to the ground, and was instantl killed.

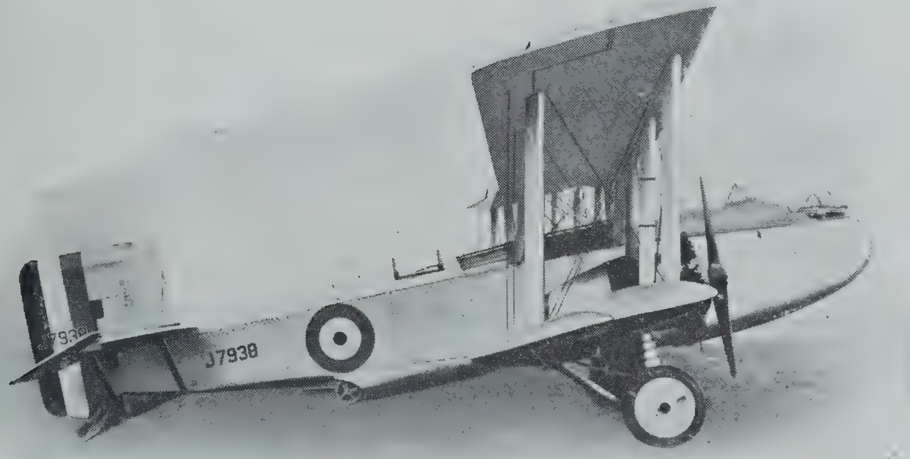
The Spencer family have long been prominent in Britis ballooning. Mr. Harry Spencer has been concerned with th making of balloons and balloon ascents for at least the la 35 years, and at one period attempted to build airship About 1902, together with a Mr. Gaudron, he produced a elongated balloon with a small motor slung below it, whic might be claimed to be the first airship built in Britai though in fact it was never controllable and merely drift like any other balloon. Also, shortly before the War 1914-1 a more or less dirigible balloon, for which he was main responsible, made a trip from Hanley to North Wales.

During the War Mr. Spencer was employed in the man facture and inspection of airship envelopes and other fabr work at the Airship Station at Kingsnorth, where his exper ence of this class of work was of value.

ANOTHER EMIGRANT.—The D.H.61 (Bristol Jupiter VIII engine) fitted with Short metal floats, which has been supplied to Western Canada Airways, being tested at Rochester prior to despatch to Canada.
—(*"Aeroplane" photograph.*)



The Boulton & Paul "Partridge" single seater fighter of all-metal construction.



Boulton & Paul All-metal "Sidestrand" Day Bomber. Chosen recently after exhaustive tests as a Royal Air Force Service Machine.

BOULTON & PAUL LTD
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Telegrams: "Boulton, Norwich."
Telephone: Norwich 581 (5 lines).
LONDON OFFICE: 135-137, Queen Victoria St., E.C.4
Telegrams: 'Boutique Cent, London."
Telephone: Central 4642.

THE DE HAVILLAND INVASION OF CANADA.

The De Havilland Aircraft of Canada Ltd. was established in Toronto under the direction of Mr. R. A. Loader, in March of this year as an assembling and distributing branch of the English parent company. The firm is to be congratulated on the fact that in the first six months of its operations it has done very considerable business.

The plant of the company is located at Mount Dennis, on the Trethewey estate, on the north-west outskirts of Toronto. This position was chosen as offering the best aerodrome site in the vicinity of the city.

The aerodrome itself is 700 yards by 450 yards, the longer side being in the direction of the prevailing wind. It is perfectly flat and the surroundings are eminently suitable. The site has historic connections as it was from this locality that the late Comte de Lesseps made the first flight in the province of Ontario in 1909, and later the Wright Brothers and their contemporary, Lincoln Beachey, gave flying exhibitions here.

On the aerodrome itself a combined hangar and assembling plant has been erected which has accommodation for twelve Moths with wings folded. Close to the aerodrome, about 400 yards away, and alongside the railroad track, is a large warehouse which is being used as stores, receiving and despatch departments and workshops. Aircraft are received here in a "knocked-down" state from England and are partially assembled. With the undercarriage attached the machines are towed to the final assembly shops on the aerodrome where they are completed and flown on test prior to delivery.

In addition to assembling, distributing and "servicing" Moths and other types of D.H. aircraft, the Canadian branch has opened up a school of instruction and it is undertaking the advanced instruction for Light Aeroplane Club instructors as well as primary instruction to Moth owners.

Formerly refresher courses for Club instructors were given at Camp Borden by the R.C.A.F., but by special authority from the Department of Defence all future training will now be given by the De Havilland Company.

The chief pilot of the company is Mr. E. Leigh Capreol, who was formerly an instructor at the Royal Canadian Air Force Training Base at Camp Borden. He joined the company in April and since then has been kept fully occupied testing three or four Moths per week, making demonstration and delivery flights, instructing various Moth owners, and conducting special classes on C.F.S. lines for club instructors.

He is a pilot of exceptional ability, for, apart from possessing the qualities necessary to demonstrate aircraft to their full advantage, he is an excellent instructor.

The first machine to be assembled at the works was a Moth which had been presented to the Toronto Flying Club by Sir Charles Wakefield. This machine was handed over to the Club on April 28. Sir Charles has more recently presented a Moth seaplane to Major-General J. H. McBrien, the President of the Canadian Aviation League, for his own personal use.

Well over 100 Moths have now been sold in Canada, and a large proportion of them has been delivered through the Canadian branch. In addition three D.H.61s have been sold. One has gone to the Ontario Provincial Air Service, who wil use it for tree-dusting and later for expeditionary work in the far north of the Province and also fire suppression duties and one to Canadian Vickers, Ltd. Another has been sold to London Air Transport Ltd., a small but extremely active concern which maintained a 100 per cent. mail service between Leamington and Pelee Island in Lake Erie last winter

GOVERNMENT ENTERPRISE.

While dealing with the De Havilland Aircraft Co. and it establishment in the Canadian market the opportunity i provided to outline the growth of popularity of the Moth in the Dominion.

The Ontario Provincial Air Service was responsible for th introduction of the Moth into Canada and by so doing it invited serious criticism from certain quarters by its optimism in expecting a machine of such diminutive size with only a fifth of the horse-power of its predecessors to undertake the strenuous work of forest conservation and protection.

The result of this enterprise on the part of the Provincia Air Service was entirely successful. .An example of the work done by the first batch of Moths delivered to the Air Service is shown by the performance of one machine G-CAOU

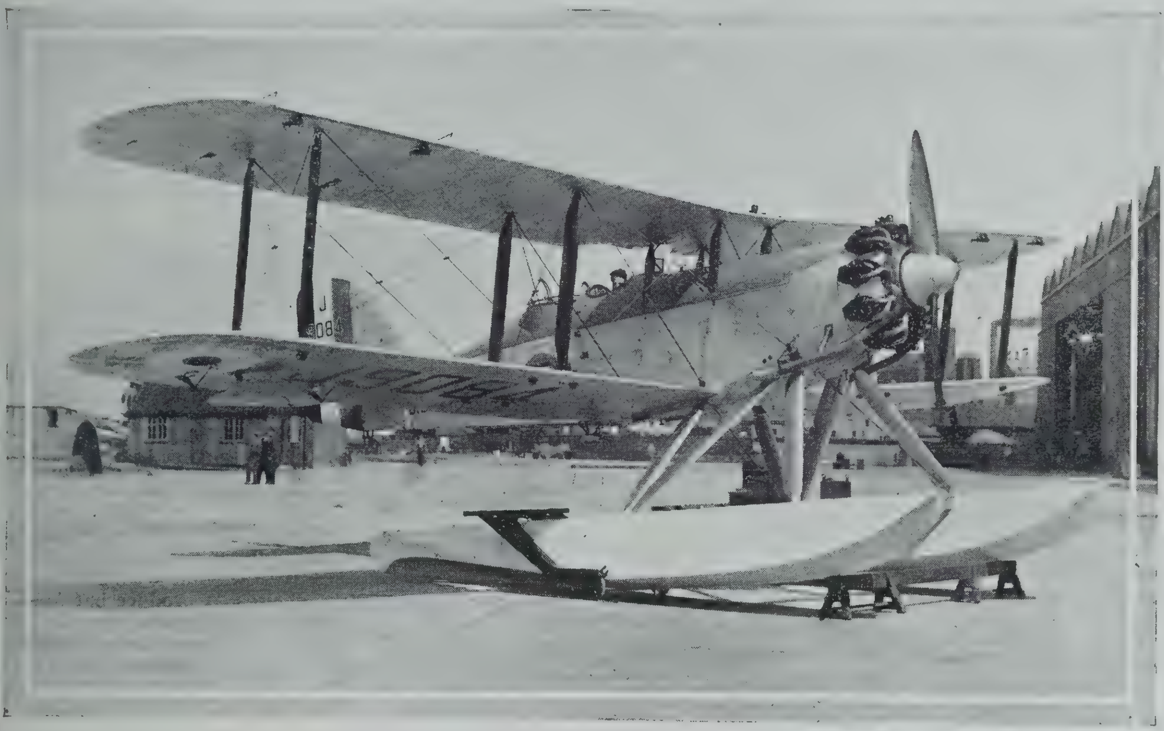
From July 10-Oct. 16 this machine flew 303.35 hours which represented 3.09 hours' flying per day. On no occasion di this machine fail to do the duty assigned to it and it maintained a patrol efficiency of 99.96 per cent. and a servic efficiency of 99.82 per cent. It flew through all kinds o weather and spent most of its inactive life riding at moorings.

The result of the experiment was to establish the Moth in Canada as a practical and economical flying machine, an this type will now replace the older and heavier types now used by the Provincial Air Service as they become obsolete

The first Moth purchased by the Canadian Governmen was used by the Hudson Strait Expedition to select bases fo the Hudson Strait air patrol which is now in operation. Between July 27 and Aug. 25 this machine operated in ver unfavourable weather including thick fog and storms an on the day following the selection of the third and last bas it was wrecked in a sudden storm. It fulfilled its purpos admirably and saved the expedition a very great deal of time labour and money.

STAG LANE, CANADA.—On the left, Mr. R. A. Loader, Managing Director of the De Havilland Aircraft of Canada Ltd., and Mr. E. Leigh Capreol, the chief pilot, and on the right, Canadian Flying Club Instructors who have done a refresher course at Mount Dennis. From left to right : Mr. W. L. Sanderson of London, Ont., Mr. L. H. Reid of Halifax, N.S., Mr. E. L. Capreol, the D.H. Instructor, and Mr. E. L. Maynard (late 25 Sqdn., R.A.F.) of Ottawa.

The
WAPITI SEAPLANE



"LANDPLANE AND SEAPLANE TOO: The Photograph shows the Westland Wapiti, Bristol "Jupiter VI" Engine, fitted with floats. The two types of undercarriage are interchangeable. The machine has recently passed its tests as a seaplane at Felixstowe, and is reported to handle very well indeed."

—"*Flight*," *Aug. 9th.*

The Westland Wapiti is a general purposes aircraft, suitable for reconnaissance, photography, wireless, advanced training, etc. Fitted with Handley Page automatic slot gear. Supplied in both wood and all-metal construction.

Enquiries are solicited for all types of aircraft including the Westland Widgeon, a two-seater high performance, light aeroplane. The ideal machine for the private owner.

WESTLAND AIRCRAFT WORKS

Branch of Petters Limited,
(Manufactured of the World Famous Oil Engines)

YEOVIL, ENGLAND.

Telegrams: "Aircraft, 141, Yeovil." ***Contractors to the Air Ministry.*** Telephone: Yeovil No. 141.

A PACE-MAKER.—The D.H. Moth G-CAOU outside the shed of the Ontario Provincial Air Service at Sault Ste. Marie, Ont. This particular machine flew 303.35 hours in 98 consecutive days on forest patrol work during the latter half of last season with an efficiency of over 99 per cent.

CANADIAN CLUB STIMULUS.

Following on this came the establishment of the Light Aeroplane Club movement. Under this scheme, which differs from the English one in several respects, the Canadian Government presents two D.H. Moths to each recognised club. In September, 1927, provision was made to establish five clubs and in the 1928-29 estimates it was proposed to establish ten more, the full quota of fifteen clubs to be in operation this summer. Plans are now being formulated for the establishment of a further fifteen, all to be equipped with Moths.

This naturally has resulted in the Canadian Government purchasing a large number of Moths. It has in all bought fifty. Twenty of these have been acquired by the R.C.A.F. for forest fire protection, transportation and general purposes and training—ten of these being seaplanes, and those for training use at Camp Borden being fitted with Armstrong-Siddeley Genet engines.

COMMERCIAL SUCCESS.

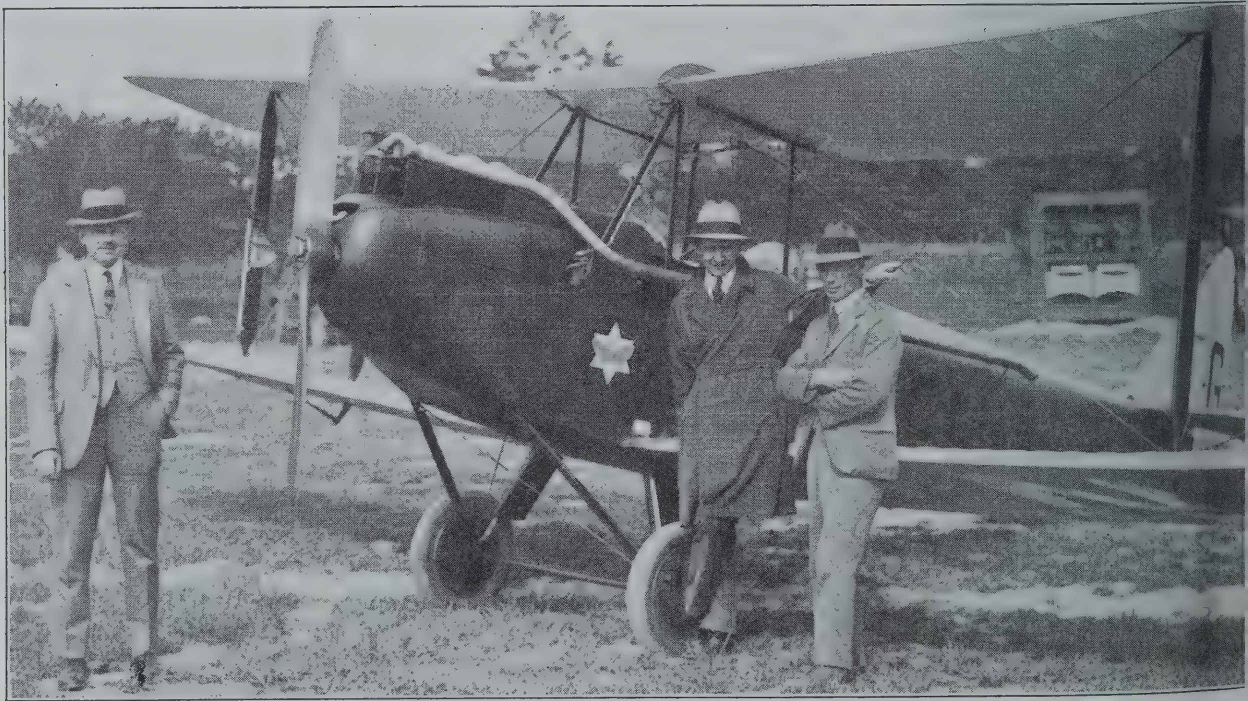
The Ministry of Marine, the Laurentide Air Services, Western Canada Airways, Dominion Airways, General Airways, and Great Western Airways among others have all purchased Moths for general transportation use and there are now over twenty actual private owners with many potential private owners awaiting delivery of Cirrus or Gypsy-Moths.

It might be pointed out here that strange as it may see the freight charges for aircraft components to Canada a actually nearly 27½ per cent. more than those to Austra although the distance to Canada is only a third of that Australia.

The enterprise of the De Havilland Aircraft Co. Ltd. h much to commend it. One hears so much of the activities a business abilities of the American commercial aircraft co structors that it is refreshing to see the progress of o British firm which, judging by the demand for its produ in Canada, is able to supply certain of the needs of t Dominion.

Admittedly America is just now producing a type of a craft which we do not at present produce but America can be given the credit for producing this type for foreign co sumption. The 200-400 h.p. five—six-seat commercial ae plane is a type which have been produced solely for Americ needs such as the Moth was produced for British needs.

America is just over the fence from Canada yet in all t time they have been there they have not supplied anythi like one-half the number of aircraft that have been suppl by the De Havilland Company in six months. This dema is not likely to fall off as the De Havilland Company is n about to produce another machine which is likely to augm their present range of commercial aircraft suitable Dominion use.—L. B.



CANADIAN PRIVATE OWNERS.—Three Moth owners at Mount Dennis. Left to right: Mr. Phillip Garrat, Mr. Frank L. Trethewey (late R.N.A.S.), owner of the property on which the D.H. aerodrome is situated and of the machine in the picture, and Mr. Leigh Sheppard, a mining engineer, the owner of a Moth seaplane.

IF . . . .

If one engine fails, what———?
Most aeroplanes equipped with two engines, or three, would be compelled to make a forced landing in this case.
Forced landing, that means: late arrival, perhaps danger to passengers, pilot and craft.

There is only one three-engined all-metal aeroplane in the world which maintains straight level flight (under full load) with only two engines running:

THE "ROHRBACH ROLAND."

THE CIRRUS MARK III ENGINE.

The Mark III Cirrus engine, which has just been introduced by A.D.C. Aircraft Ltd., is a development of the famous Mark II engine of the same name. It has been designed not so much to take the latter's place as to provide an alternative and interchangeable engine for use when rather more power is desirable than is provided by the earlier type,—as for instance in light seaplanes when an extra rapid take-off and climb are needed, or in tropical climates.

To a large extent the components of the Mark II and Mark III Cirrus engines are identical, the weights are the same, and the general lay out and arrangements of the two engines are distinguishable from the exterior only on account of the difference in cylinder-heads.

The essential features of the Mark III are the said new cylinder-heads and, it is understood, the connecting-rods. These latter have been redesigned for higher speeds of rotation, and higher working pressures than those of the Mark II.

The cylinder-heads are modified to accommodate larger valves, to give a higher compression ratio, and to take a somewhat modified valve-gear. At the same time these new heads give even better cooling than is given by the original.

The effect of these changes is to increase the output of the Mark III type to 84 b.h.p. at 1,800 r.p.m., the normal speed of the Mark II type, which gives 78 h.p. at that speed. At the same time the normal speed of the Mark III has been increased to 1,900 r.p.m., at which the engine develops 85 h.p.,—an overall gain of 10 b.h.p.

As the Cirrus Mk. III has so many of its main features in common with the well-tried Mk. II engine it may confidently be expected to give the same reliability in service as its forerunner. This expectation finds confirmation in such performances as the engine has had time to put up.

The engine's first public appearance was in the King's Cup Race of this year when two Cirrus Mk. III engines, one in a Moth, the other in an Avian, flew the course of just on 1,100 miles in two days, running at full throttle during the whole time, without the least sign of distress.

The second public appearance of the Mk. III engine was at the Halton meeting on July 26, when the machine fitted therewith carried off the first prize and Challenge Cup.

The Cirrus Mk. III passed the Air Ministry Type Test without untoward incident at its first attempt, and A.D.C. Aircraft Ltd. are able to offer immediate deliveries of the new engine at the same price as the Mk. II type.

SPECIFICATION OF THE CIRRUS MARK III ENGINE.

TYPE.—Four-cylinder, vertical, air-cooled.

CYLINDERS.—Bore 110 m/m., stroke 130 m/m. Compression ratio 5.4/1. Cast-iron barrels with integral fins. Removable aluminium alloy heads, each held by four long studs running to crankcase. Two bronze valve seats inserted in each head.

PISTONS.—Aluminium alloy castings with three C.I. rings and fully floating gudgeon-pins.

CRANKSHAFT.—Normal four-throw type, running in three white-metalle bronze-bushed bearings and two roller bearings (one at each end A separate airscrew-shaft is bolted to a flange on the end of th crankshaft and is located by a ball thrust race.

CRANKCASE.—In two sections, of cast aluminium alloy. The uppe section carries the cylinders, crank and camshaft bearings. Th lower half serves as an oil sump.

VALVE GEAR.—The camshaft is carried on starboard side of the cranl case and is spur-gear driven from the rear end of crankshaf Three plain bronze and one ball journal bearings are provide The overhead valves are operated by tappets, butt-ended push-roc and rocker arms. The rocker arm brackets are easily removab and replaceable.

LUBRICATION.—The lower half of the crankcase will contain 1½ Im gallons (7 litre) of oil,—enough for 5 hours' run. A drowned c pump (gear type) in the bottom of this oil container feeds a oil gallery on the port side of the crankcase and oil is supplie thence direct to the three plain crankshaft bearings. The big-en of the connecting-rods have oil-collecting scoops, and other par of the mechanism are splash lubricated.

CARBURATION.—One Claudel Hobson R.R.C.H. carburettor suppli mixture to a four-branched manifold of welded sheet steel.

IGNITION.—Two B.T.H. magnetos, type G.A.4, are mounted in tande at the rear starboard side of crankcase. One magneto is fitted wi an impulse starter coupling.

STARTING GEAR.—A hand turning gear can be fitted if required.

WEIGHT.—280 lbs (127 kg.).

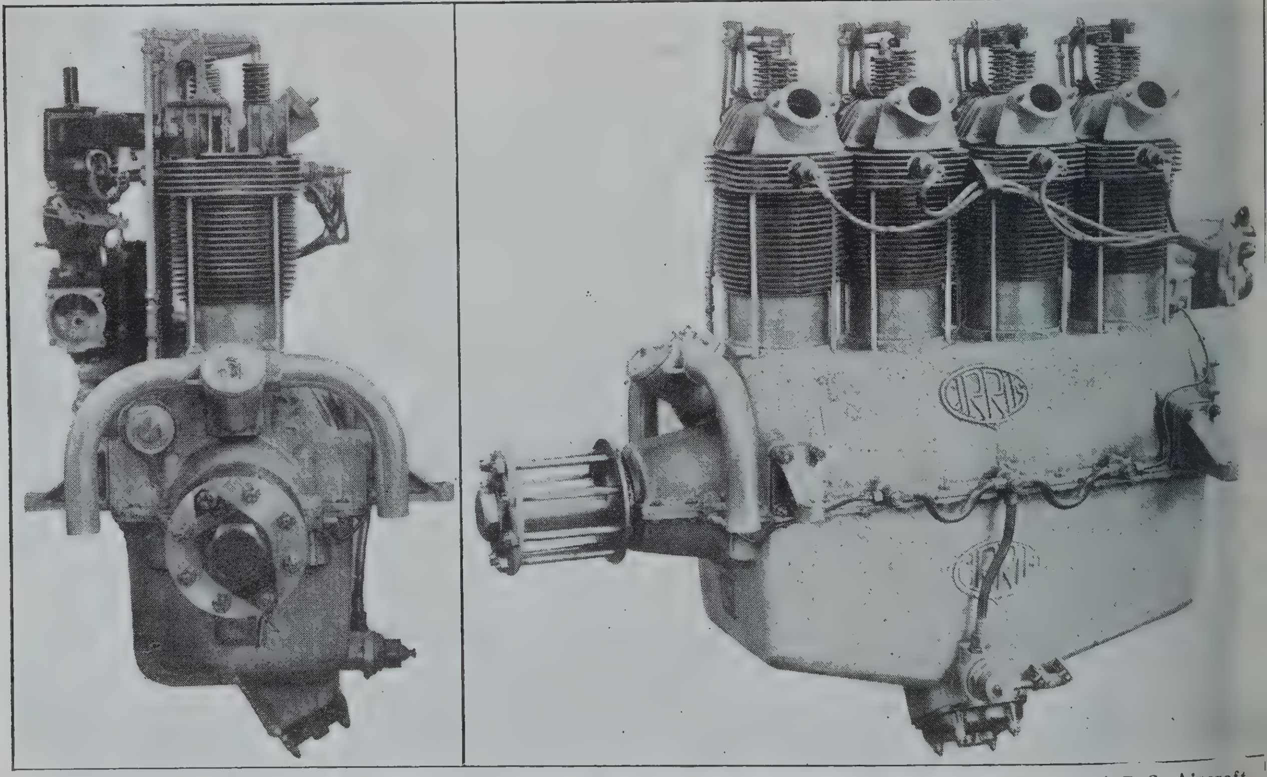
PERFORMANCE.—Normal output 85 b.h.p. at 1,900 r.p.m. Maximum b.h.p. at 2,100 r.p.m. Petrol consumption 0.6 pint (0.34 litre) p h.p. hour. Oil consumption .018 pint (.0097 litre) per h.p. hour.

OVERALL DIMENSIONS.—1.1615 m. (45.8 inches) long, 0.916 m. (36.2 in high, 0.480 m. (18.9 inches) wide. Bearer centres 0.540 m. (2 inches).

A USEFUL ALLIANCE.

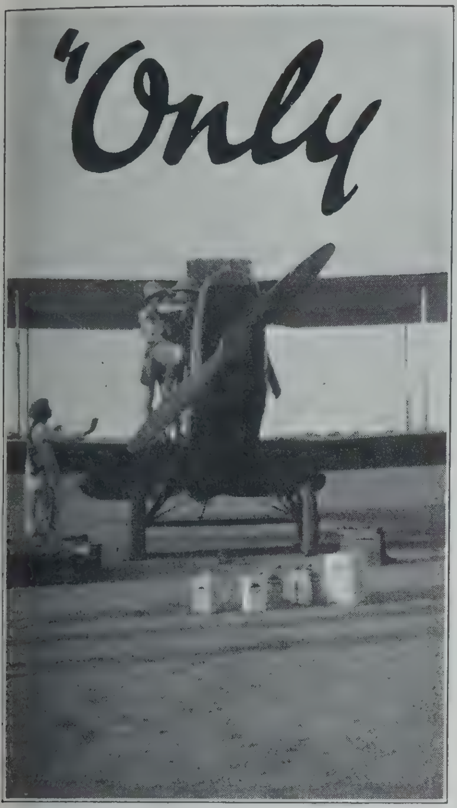
Congratulations (belated) to the Chance Vought Corporati and to Major Temple N. Joyce on the appointment of t latter as sales manager to the former. Before the tribal di pute in Europe some 14 years ago Mr. Joyce was a sal engineer in the steel business, but as soon as America can into the War he joined the U.S. Army Air Service and w one of those excellent American aviators who came to th country and trained with the R.F.C. He won for himse quite a high reputation, both here and in France, for h skill as a pilot, and in 1919 was promoted captain in t U.S. Army Air Service. He left the army shortly afte wards, and in 1923 was promoted major in the Reserve.

One has tender recollections of a singularly cheerful eve ing spent with sundry of the bright spirits of U.S. Arn and Navy Aviation in Major Joyce's private room in t hotel at Baltimore on the eve of that abortive Schneid Trophy meeting, at which the U.S. Navy so sportingly r fused to claim a walk-over in the absence of foreign co petitors. One was then greatly impressed by Major Joyc knowledge of international aviation, and one judges that will be a valuable asset to the Vought outfit.—C. G. G.



THE CIRRUS MARK III ENGINE.—Airscrew-end and exhaust-side views of the latest product of A.D.C. Aircraft Ltd. This engine, which gives 85/95 h.p., has been produced as an alternative to, and not a replacement of, the Mark II engine.

"Only what I expected"



Read Mr. J. S. Newall's letter of appreciation of

Mobiloil

Regd. Trade Mark

on the

VINCENT-NEWALL FLIGHT

"c/o Eastern Express Co., Ltd.,
Karachi, India.

Messrs. The Vacuum Oil Co., Ltd.,
Caxton House,
London, S.W.1.

Dear Sirs,

Having been engaged on my present expedition for over four months and having now arrived in India, it occurs to me that possibly it may be of interest to you to hear of the results that I have obtained from the Vacuum Oil which I have been using on the Siddeley Puma engines.

As anticipated the oil has proved extremely satisfactory in every way. Despite the fact that much of the flying has been carried out in temperatures of over 100°F and in some cases over 110°F and that no special oil coolers are fitted, the oil has maintained its body in excellent fashion. The engines have now both completed over 160 hours running and are receiving a top overhaul. The bearings are in wonderfully good condition and appear to be just as tight as when they were originally fitted.

These results are only what I expected. What has however, surprised and impressed me very much is the fact that all along the North African Coast, in Egypt, Palestine, Iraq, Persia and India it has always been possible to obtain supplies of Vacuum Mobiloil without difficulty or previous arrangement. Had I been using any other brand of oil I should certainly have had to make special arrangements to have stocks of oil laid down for me, as no other firm of lubricating oil manufacturers appear to have anything approaching such a complete system of distribution as you have in the countries above mentioned.

I should also like to take this opportunity of thanking through you all your agents through whom I obtained supplies and who in in all cases showed me much kindness and rendered valuable assistance.

Yours faithfully,

(Signed) JOHN S. NEWALL."

The oil for reliability in the air— obtainable all over the World

Announcement of the VACUUM OIL COMPANY, LTD., Caxton House, LONDON, S.W.1

ON INFORMATION FOR PILOTS.

Somewhere in 1924 or thereabouts, the Department of Civil Aviation produced a publication known as *The Air Pilot: Great Britain.* This publication gave, for the benefit of civil pilots and for such Service pilots as might go to the trouble and expense of getting it, a mass of information about the rules and regulations for cross-country flying both in the British Isles and on the Continent, under the International Convention of Air Navigation. It dealt with such diverse things as International ground signals, the indication of meteorological information, the organisation of wireless telegraph service, and details of stations, call signals, hours of watch and so forth.

Further it contained very well drawn and well printed maps from the Ordnance Survey, 1923, giving the precise location of every aerodrome which then existed in England and Ireland. It also contained information about the conditions governing the use of Government air stations by civil pilots.

It gave full information about the registration of aircraft; certificates of air-worthiness; the responsibility of air authorities; the licensing of pilots, aerial navigators, ground engineers and aerodromes; the constitution of log books; what to do in case of accidents; insurance conditions; passport regulations; swinging of compasses; recognised air routes; legalised places of entry and exit in various countries; air pilotage marks; and all sorts of things which a civil pilot ought to know and generally does not.

Since then a series of supplements has been issued, generally at monthly intervals, the latest being No. 46, dated August, 1928. In the course of these forty-six monthly supplements, which altogether have a bulk equal to about three times that of the original *Air Pilot,* a great deal of the original is cancelled or amended, phrase by phrase, in such a way that no human brain could remember the amendations and emendations and recommendations, and they are so many, that if the alterations were written in ink on the pages of the original *Air Pilot,* there would probably be more ink than print on those pages.

Furthermore, the weight of the complete outfit is such that if it were carried in a modern light aeroplane, as it certainly should be by any truly conscientious pilot, it would deprive the pilot of a weight of petrol equal to about twenty-five miles' flying.

A RECOMMENDATION.

In view of these interesting, if somewhat lamentable, facts, one suggests most respectfully to the Department of Civil Aviation that it is quite time that a second edition of the *Air Pilot* should be produced, in which all the alterations notified in the forty-six monthly supplements have been made in the text, and to which all the fresh information in those supplements has been added.

Certain enthusiastic owner-pilots have written to THE AEROPLANE pointing out the impossibility of working with the existing *Air Pilot* and its supplements. Possibly a very careful and painstaking pilot who started with the original publication and has kept it up-to-date, on a sort of card-index system, may be able to make sense of it in its present condition. But certainly no newcomer to the game could possibly absorb all the information which it contains in present muddled condition without doing an amount of s reading and note-making which, if applied in other di tions, would probably pass him commendably high out the Staff College.

One of these correspondents suggests that surely for price of 32s. 6d. a pilot has a right to expect an up-to-d publication, and that though he would not mind correct one or two supplements, expecting him to read, mark, le and inwardly digest forty-six supplements accumulated four years is trying him a bit too high.

AN EXCUSE.

On the whole one agrees with the afore-mentioned poi of view. But most human beings find as old age cre upon them that there is a good deal to be said for official point of view in most matters, and one confes that in these days when one reads an attack on officiald or on any official action, one is a little apt to think f of all what may be the official reason for being apparently bone-headed. After all, perhaps a skull full of solid b may have something to recommend it as superior to cranium filled with amorphous fluid or, alternatively, w sawdust and broken bottles.

In this case one does well to remember that there mighty few air pilots in the United Kingdom and that these few, still fewer are so happily placed as to be able pay 32s. 6d. for a copy of a publication which, in any c they are never likely to be able to find time to read. Na ally, therefore, the circulation of the *Air Pilot* must be v small, and the cost of merely producing, editing, setting and printing a volume which weighs a good many pou must be quite a lot more than 32s. 6d. per copy.

All the loss incurred between producing this solid bl of information and the price received from the sale of has to be borne by the long-suffering British tax-payer. even the most reckless of bureaucrats would hesitate ab adding to the tax-payer's burden by bringing out a edition once a year or even once in two years for air pi whose number is so small as to be politically insignifica

One does not doubt for a moment that for their own sa in using their own copies, the officials of the Departm of Civil Aviation would love to be allowed to produce a edition of the *Air Pilot.* But where the question of scr ing money out of the Treasury arises, time is always much less value than money.

From the Treasury's point of view, there is truer econ in forcing the officials in the Department of Civil Aviat and the actual users of the *Air Pilot,* to spend hundreds man-hours a day wrestling with its pages (which, i dentally, are in loose-leaf form without a back) than th is in forking out the money which would be needed fo completely revised new edition.

For the consolation of those who already have copies the *Air Pilot,* one may suggest that the number of sup ments is not very likely to incerase in the fut as this enormous bulk of the forty-six supplements is p ably the result of the constantly changing conditions of pilotage. As the art of flying becomes more and more and dried, doubtless fewer alterations to its rules and re lations will be needed. And anyhow one cannot fail to

REJUVENATION.—Lieut. Bentley's D.H. Moth on which he flew to the Cape and back, which has now been fitted with the A.D.C. Cirrus Mark III engine and new cowling designed by Mr. Stack, who is seen beside it.
—("*Aeroplane*" *photograph.*)

TITANINE

THE WORLD'S PREMIER

DOPE

KING'S CUP 1928.

THE WINNING MACHINE
a D.H. MOTH piloted by Capt. W. L. Hope
WAS COATED WITH
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20 Machines out of 24
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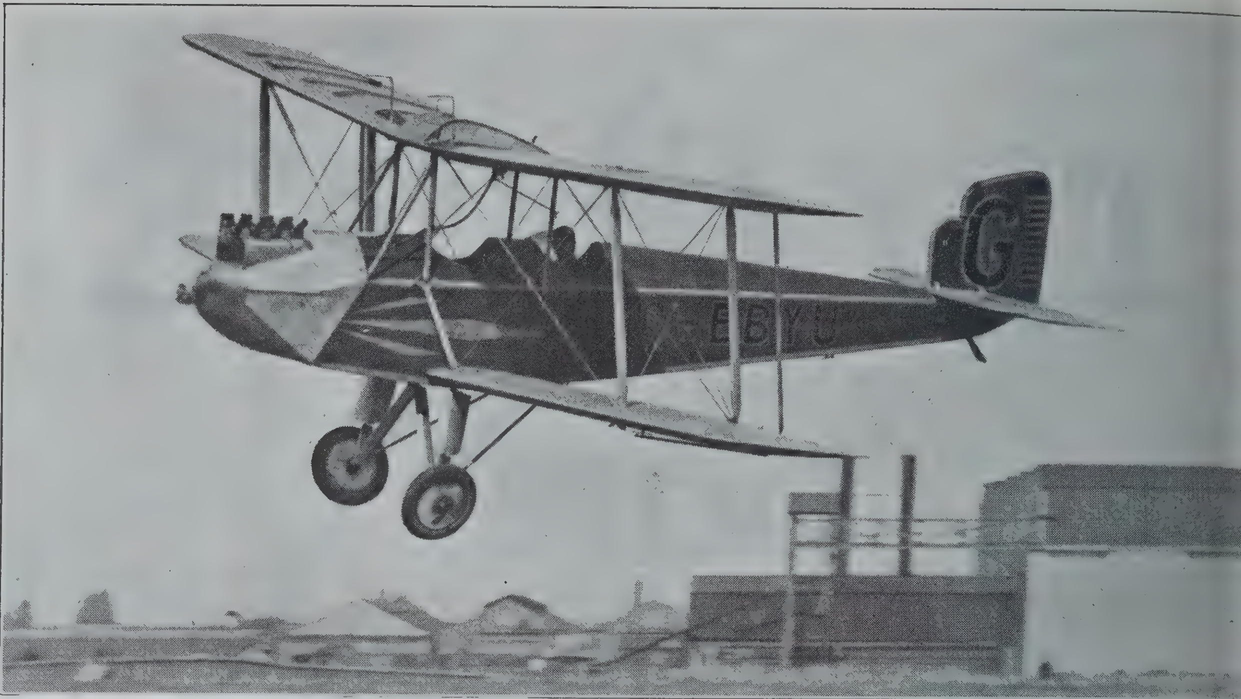
Milan (Italy).



THE SIMMONDS SPARTAN.—The latest version of the Simmonds Spartan now fitted with an A.D.C. Cirrus Mark III engine being flown at Croydon by Mr. T. Neville Stack.—(*"Aeroplane" photograph.*)

that when he has bought the original *Air Pilot* and the forty-six supplements, the owner has got an awful lot of book for 32s. 6d.

Nevertheless, consolation or no consolation, one does suggest that the Department of Civil Aviation ought to produce a new edition of the *Air Pilot* completely revised and brought up-to-date. Even in its abridged and amended form no ordinary brain could absorb and memorise all the information in it. But, at any rate, if modernised, a fairly intelligent person might be able to find his or her way about in it, which is impossible at present, and so might save himself or herself from fines and/or imprisonment owing to some unwitting breach of some unnoticed law which might be made quite clear in a new edition.—C. G. G.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec. Harold E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending Sept. 9.

Flying Time 80 hr. 55 min. *Dual Instruction* 53 hr. 5 min. *Solo Flying* 27 hr. 50 min. *Instruction**.—A. O. Wigzell, A. J. Farfan, G. R. S. Charles, Dr. Cook, A. M. Leonard, Mrs. Cook, J. F. Wood, E. I. Puddy, A. C. Thomas, J. W. P. Chalmers, A. D. Blumlein, J. W. Radbone, Miss James, E. K. Blyth, J. E. Edwards, J. S. Whitborne, R. C. Woodcock, Miss Fletcher, H. Sutton, H. R. Presland, Miss Hicks, H. C. Bergel, B. Carey, R. K. Koratkar, E. T. Symmons, A. J. Richardson, C. J. Pool, T. Clarkson, S. Blythe, J. Harrison, A. Courtald, C. W. Bonniksen, G. R. Mack, Mrs. Thatcher, W. W. Briscoe, E. Davis, R. S. Rattray, L. W. Gibbens, G. F. Roberts. *Soloists.*—C. Campbell, P. H. Wills, J. D. M. Robinson, J. J. Hofer, P. W. Hoare, T. Elder-Hearne, W. L. M. O'Connor, W. Hart, O. J. Tapper, C. W. Bonniksen, Lord Douglas Hamilton, E. T. Symmons, A. D. Blumlein, H. Sutton, W. T. Hay, J. H. Safrey, A. F. Burns, C. E. Murrell, J. W. P. Chalmers, B. B. Tucker, G. H. Craig. *Passengers.*—14.

Notes.—The following did first solos: J. W. P. Chalmers, A. D. Blumlein, H. Sutton.

[* The names of the pilot-instructors are not given in the Club report. Presumably they are being kept on the Secret List because so many good Club Instructors have been, or are being, bought by organisations over-seas or mere commercial firms at home.—Ed.]

The Lancashire Aero Club.

[Sec.: F. W. Atherton, Woodford Aerodrome, Cheshire.]

Report for week ending Sept. 8.

Flying Time 24 hr. 50 min. *Instruction* 12 hr. 10 min. *Soloists* 8 hr. 10 min. *Passengers* 2 hr. 50 min. *Tests* 1 hr. 40 min. *Instruction.—With Flt. Lt. Todd*—Messrs. Serck, Weale, Goss, Hardy, Davies, D. B., Ruddy, Taylor, S., Barlow, Garner, Ashworth, Foote, Allott, Hardy, Fallon, Caldecott, Eckersley, Faulkner, Greg, Mills, Hartley, and Rodman, Miss Baerlein. *With Mr. Cantrill*—Messrs. Faulk Eckersley, Serck. *Soloists (under instruction).*—Messrs. Weale, Se *Pilots.*—Messrs. Cantrill, Hardy, Cohen, Caldecott, Michelson, Ru Agar, Nelson, D. Lacayo, Mills, Meads. *Passengers.—With Flt. Todd, Mr. Meads, Mr. Hall,* and *Mr. Lacayo.*—10.

Notes.—Several of the Lancashire Club members who visited Liverpool Club last week were delighted by the last issue of AEROPLANE. Mr. Leeming is in future landing at Sealand—he s he can take a hint.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending Sept. 9.

Flying Time 26 hr. 50 min. *Instruction* 13 hr. 50 min. *A Pi* 9 hr. *Solo Training* 15 min. *Passengers* 3 hr. 25 min. *Test* 20 m *Instruction.—With Mr. J. D. Parkinson*—Miss Slade, Miss Yendall, Kish, Sir Joseph Reed, Messrs. Irving, Griffiths, King, Humble, L son, Sadler, Temple, Tomkins, Middleton, Walker. *A Pilots.*— Heslop, Messrs. Irving, W. B. Ellis, Leech, Runciman, Wilson, R. Thompson, C. Thompson, Wardle, Turnbull, Horn, Dr. Dixon, Alderson. *Solo Training.*—Miss Slade.

Notes.—We regret that we are losing our Instructor, Mr. J. Parkinson, who is going to Canada to International Airways of Can Ltd. He has been with the Club just over two years and has tur out many pilots. Club members and his many friends in the no wish him every success in his new appointment.

Flg. Off. Thorn called this week with Fokker J. 7986, and sta overnight. The machine was greatly admired on the aerodrome.

The Club House and aerodrome will be closed from Sept. 17 two weeks on the occasion of the Staff's annual holiday.

[Everybody will wish well to Mr. Parkinson in his new activit And Canadian Aviation will be brightened when those two inveter rivals, Sparkes and Parkinson, meet again in some contest of future.—Ed.]

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Report for week ending Sept. 8.

Flying Time 50 hr. 23 min. *Dual Instruction* 27 hr. 35 min. *Solo* 18 hr. 50 min. *Passengers* 2 hr. 35 min. *Tests* 1 hr. 23 min. *Instruction.—With Flt. Lt. Rose and Mr. W. H. Sutcliffe*—T. W. Wild, J. A. Cook, R. G. Welch, R. B. Laidlaw, D. N. Khatri, C. T. Davis, Williamson, L. H. Lee, L. V. Mann, S. Duckitt, T. H. Drury, J. Morton, P. M. Patel, J. Fitzgerald, J. W. Astley, M. Blakew J. Ridsdale, H. Coleman, A. E. Coltman, G. P. Haylock, H. E. Eva J. R. Guthrie, G. Savage, M. Turner, Major D. Thomson, Dr. W. Tillike, Mrs. Leigh Fermer. *Soloists.*—J. Cobb, R. G. Welch, R. Bednell, R. L. Jackson, E. P. Lane, R. B. Laidlaw, M. A. Murta R. C. Baxter, L. H. Lee, J. Rowley, J. R. Guthrie, H. J. Wilkes, L. Mann, J. Williamson, E. L. Hulme, G. Robson, A. B. Gibbons, Duckitt, E. D. Wynn, S. H. Smith, W. M. Morris, T. H. Drury, Savage, J. W. Astley. *Passengers.*—7.

L. V. Mann and J. W. Williamson made first solos.

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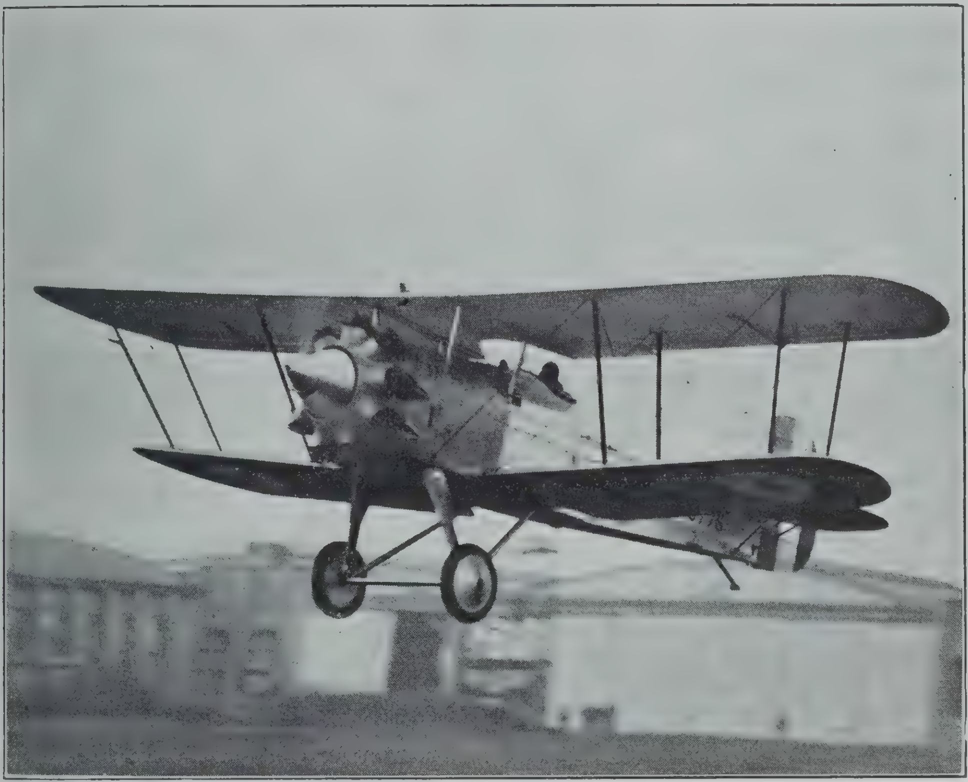

"Aeroplane" Photograph.

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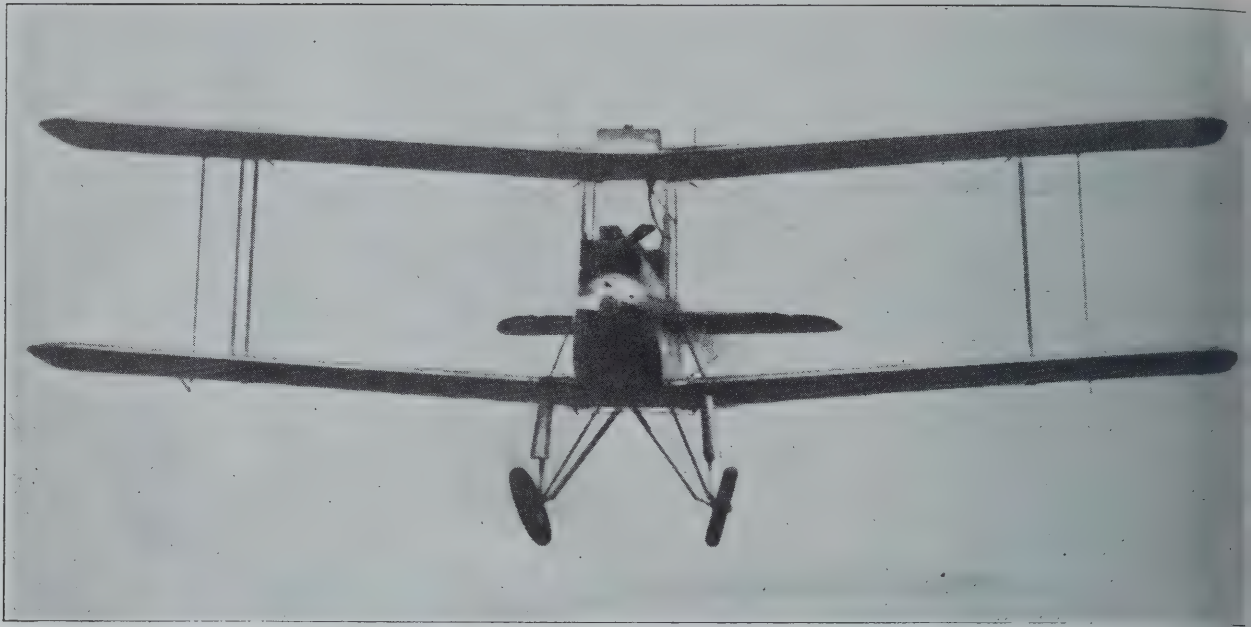

THE SIMMONDS SPARTAN.—A front view of the machine showing the attitude of the split undercarriage when the machine is in the air.—(*"Aeroplane" photograph.*)

Mr. J. R. Guthrie of Melbourne passed all tests for his "A" Licence. This week's total of flying hours beats our previous best for two machines in one week.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, Hamble Aerodrome, Southampton.]

Report for week ending Sept. 7.

Flying Time 56 hr. *Dual Instruction* 23 hr. 40 min. *A Pilots* 15 hr. 50 min. *Soloists* 12 hr. 35 min. *Passengers* 1 hr. 55 min. *Tests* 2 hr.

Total Flying Time for August 181 hr. 15 min. *Dual* 88 hr. 55 min. *Soloists* 17 hr. 10 min. *A Pilots* 41 hr. 20 min. *Tests* 6 hr. 5 min. *Passengers* 27 hr. 45 min.

Instruction.—With Flt. Lt. Swoffer and Mr. W. H. Dudley—Cambell, Bradley, Turner, Mrs. Gordon Smith, Reuther, Lt.-Cdr. Coveney, Scott Hall, Lt.-Cdr. Creswell, Milford, Tobutt, Buckley, Lt. Couchman, Courtney, Weekes, Walker, Sturge, Miss Melvill, Evans, Lt. Des Graz, Brodrick, Evershed, Lt. Coode, Richardson, Mattock, Cdr. Bell, Lt. Donner, Hall, Lt. Oswald, Craske, Makgill, Sq. Ldr. Bradyll-Johnson, Endacott, Whittle. *A Pilots.*—Capt. Kirby, Michelmore, Lt. Heath, Parker, Wills, Lt. Oliver, Lt. Kimmins, Sanders Clark, Bradley. *Soloists.*—Cambell, Sturge, Goldman, Lt.-Cdr. Coveney, Curtis Nuthall, Wells, Flg. Off. Holmes, Flg. Off. Hughes, Cdr. Tower, Whittle. *Passengers.*—20.

Notes.—This week four members passed for "A" Licence—Messrs. Goldman, Cambell, Curtis Nuthall and Sturge. Lt.-Cdr. Coveney did a successful first solo on Saturday.

Owing to shortage of Club aircraft, Lt.-Col. Strange of the Isle of Purbeck Club kindly consented to the Simmonds Spartan being used at our Bournemouth branch on Wednesday for instruction. Mr. Grahame Gibbs, the Chairman of the Bournemouth Section, states that everyone was pleased with the Spartan and that they kept Mr. Banting busy all day.

The Bristol and Wessex Aeroplane Club.

[Sec.: Capt. C. F. G. Crawford, Filton Aerodrome, Bristol.]

Report for week ending Sept. 8.

Flying Time 25 hr. 15 min. *Instruction.—With Mr. Travers*—Messrs Greenhill, Hibbert, Keeling, Neale. *With Mr. Bartlett*—Messrs. Keeling, Neale, Miss Miles, Messrs. D. B. Singh, R. Clarke, King, Putnam, Hughes, Hibbert, Amory, Heaven, and Hon. C. Dutton. *With Mr. Tratman*—Messrs. Heaven and Greenhill. *With Mr. Culverwell*—Mr. Keeling. *Soloists under instruction.*—Mr. Amory and Mr. Neale. *A Licence soloists.*—Messrs. Lynas, Hall, Keith-Jopp, Greenhill, Miss Miles, Capt. Brewer, and Mr. M. M. Singh.

On Tuesday last Mr. A. H. Downes-Shaw returned from a tour on the Continent in his private Moth G-EBST. He had visited Belgium, France, Holland and Germany. We have not yet heard the details of his trip, but hope that a full account will be given later. He left on Thursday for Cornwall.

Some sixty women applicants for the Air League Scholarship are to be entertained by the Club at Filton on Saturday, Sept. 15. The Selection Committee will welcome the assistance of any pilots from other Club who would visit us on that day.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadleigh, Suffolk.]

Report for week ending Sept. 8

Flying Time 17 hr. 15 min. *Dual Instruction* 10 hr. 55 min. *A and B Pilots* 1 hr. 10 min. *Soloists under instruction* 3 hr. 5 min. *Passengers* 1 hr. 45 min. *Tests* 25 min. *Instruction.—With Mr. Lowdell*—Mrs. Young, Dr. Mildred Yate, Messrs. Pettiward, Jolly, T. Marriage, Ogilvie, Croydon, Welsh, Billinton, and Wedd. *A and B Pilots.*—Dr. Sleigh, Flg. Off. Birt, and Mr. R. Brown. *Soloists under instruction.*—Messrs. Pettiward, Jolly and Ogilvie.

Mr. Jolly passed for his "A" Licence with flying colours; and Mr. Ogilvie, who is 17 years old and still at Rugby, did his first solo successfully. It is hoped that he will get his "A" Licence before term begins.

A large number of machines are entered for the ON TO HADLE on Saturday, and the Display looks as if it will attract many vis aircraft. Members of other clubs will be admitted to the encl free.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending Sept. 8

Flying Time 19 hr. 45 min. *Dual.—With Mr. Young*—Messrs Meadows, G. Wharton, C. Land, J. Luddington, W. S. Coates, Cator, Messrs. C. Ransome, A. Kirkby. *Soloists.*—Messrs. R. W. M A. G. Barrett, W. P. Cubitt, G. Gough, A. G. Marshall, R. T. Ha D. Corsellis, R. F. Potter, N. Brett, H. Cator, H. Pank, N. Lin *Passengers.*—12.

Notes.—Flying holidays are becoming quite common in these One member has been staying here for a fortnight and flying

VIEWS AND REVIEW

THE WAR IN THE AIR. Volume II.
H. A. JONES. (Official History). Post free, 18

"The facts set forth in this volume, so far as they go, cannot be disputed. They are the result of much research through official documents of all kinds, from Cabinet Minutes down to the Combat Reports of inconsiderable flying men."
C. G. G. in *The Aeroplane* of June 27.

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". . . a good book and one that should be read by all those in the R.A.F. who desire to widen their knowledge of the recent war . . ."—C. F. S. G. in *The Aeroplane* of June 20.

AIRMEN OR NOAHS.
Rear Admiral MURRAY F. SUETER, C.B., R.N. M.P. Post free, 25/

"Admiral Sueter has attained his objective in that he has confounded 'NEON.' He has exposed that writer's fallacies, denied his claims and refuted his arguments."
C. M. McA. in *The Aeroplane* of June 20.

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C. G. G. in *The Aeroplane* of June 20.

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possible day. He is trying to keep his record for priceless landings and has managed so far not to break anything.

Another member who has been used to "53's" has his machine in dock so bought a kite with 1,000 feet of cord and proceeded to demonstrate how a kite should be flown. Unfortunately there were wires in the vicinity in which the P.M.G. takes an interest, and the cost of that solo will be one new wire plus time. Machines which fly below the wires are not half so risky.

The weather this week has been splendid, so of course we have only had one machine in commission most of the time. Now we have two the weather changes and what we need to-day is a swimming pool.

The Isle of Purbeck Light Aeroplane Club.

[Sec.: Lt.-Col. Louis Strange, D.S.O., M.C., D.F.C., Worth Matravers, Dorset.]

Report for week ending Sept. 8.

Flying Time 12 hr. 20 min.

On Monday the Spartan returned from Croydon with the Cirrus Mark III engine. She is now as virtuous in getting off as in pulling up, and as for climb—well, we are all studying astronomy.

On Wednesday we lent the machine to the Bournemouth section of the Hampshire Aeroplane Club who would otherwise have had a blank week. We were glad to see our aeronautical discernment so enthusiastically endorsed by the Bournemouth members.

The Liverpool Flying Club.

[Hon. Sec.: W. F. Davison, Hooton Park Aerodrome, Hooton.]

The Liverpool Correspondent of *The Morning Post* reported on Monday as follows:—

"The Liverpool Aero Club was to-day admitted to the Air Ministry's scheme of financial assistance.

"Since it inception, the Club has made strenuous efforts to qualify, and its members have been putting in more flying hours per month than any other club in the country, except that of London."

[Doubtless the Club was so overcome by the good news that it was unable to send in a report of its doings for last week.—Ed.]

FLYING SCHOOLS.

The Henderson Flying School.

[Managing Director: Lt.-Col. G. L. P. Henderson, Brooklands Aerodrome, Byfleet.]

Report for week ending Sept. 6.

Flying Time 45 hr. 5 min. *Dual with Lt.-Col. G. L. P. Henderson.*—Messrs. Billimoria, d'Eyncourt, Garthwaite, Banks, Taylor, Thomas, Oliver, Egston, Forsyth, Preston, Brooks, Moursi, Daniel, Rogers, Bennett, Elton. *Dual with Mr. Davis.*—Messrs. Austin, Banks, Hsiao, Dr Taylor, Messrs. Daniel, Norman, Groner, Garthwaite, Grierson, Preston, Oldmeadow, Mrs. Scott, Mrs. Monckton. *Dual with Mr. Davenport.*—Messrs. May, Garthwaite, Groner, Grierson, Kerr, Daniel, Mrs. Monckton, Miss Wellby.

On Sept. 5 Mr. Courtney-Bankes failed to notice a fence across the aerodrome when landing and broke the undercarriage and airscrew, but was flying again within 48 hours.

The school is very busy and several pupils are ready to take their tickets.

SIR PHILIP SASSOON'S CRUISE.

Sir Philip Sassoon, the Under-Secretary of State fo
will leave towards the end of this month on a flying
of the Mediterranean in the Blackburn Iris flying-boat
Rolls-Royce Condor engines). The exact itinerary
flight is not yet known but it may include an extensio
Africa along the Nile or towards India.

A FALSE START.

On Sept. 4 Sergeants Assolant and Lefèvre, or the
Regiment d'Aviation, left Le Bourget on their Bernard
plane (Hispano-Suiza engine) with the announced inte
of flying to New York across the North Atlantic.

After their humorous attempt of the previous day,
they failed to leave the ground because they forgot to
on the petrol, they made an apparently brilliant take-of

Later the same day they landed at Casablanca on the
coast of Africa with a broken oil pipe. There the dis
was made that the reason for the excellent take-off
Bourget was that they had a comparatively light lo
petrol on board, insufficient, at any rate, for a crossi
the Atlantic.

This revelation has very naturally incensed the F
press and also all those who have an interest in avi
These two non-commissioned officers had succeeded i
ting the machine and engine presented to them by
makers, and they had also succeeded in raising a s
500,000 francs, the majority from the son of a wealthy
proprietor in Paris. They apparently had reputatio
pilots and it appears that they have traded on this repu
to obtain the necessary material and financial support
flight which they ultimately found to be outside
scope.

It is regrettable that there are still people who are w
to give financial aid to such ridiculous exploits as At
flying. While aviation needs the assistance of wealthy p
it has now reached a point where it should be able to
between those who desire to see some good result from
munificence and those who merely desire personal pub

If it were possible to eliminate the latter such inc
as the Assolant-Lefèvre *affaire de bêtise* would not aris
the meantime one sympathises with French aviation i
it should be annoyed by such silly and pointless affairs
it is so much concerned with matters of much great
portance in putting its aeronautical house in order.

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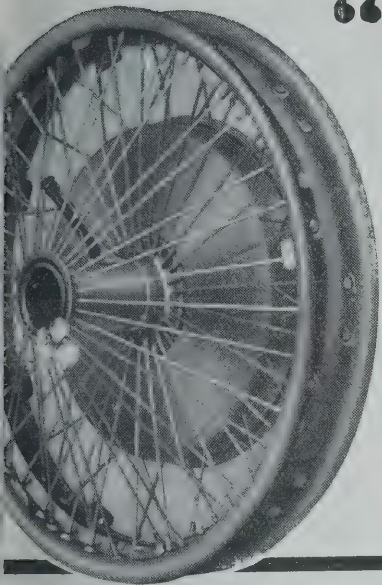

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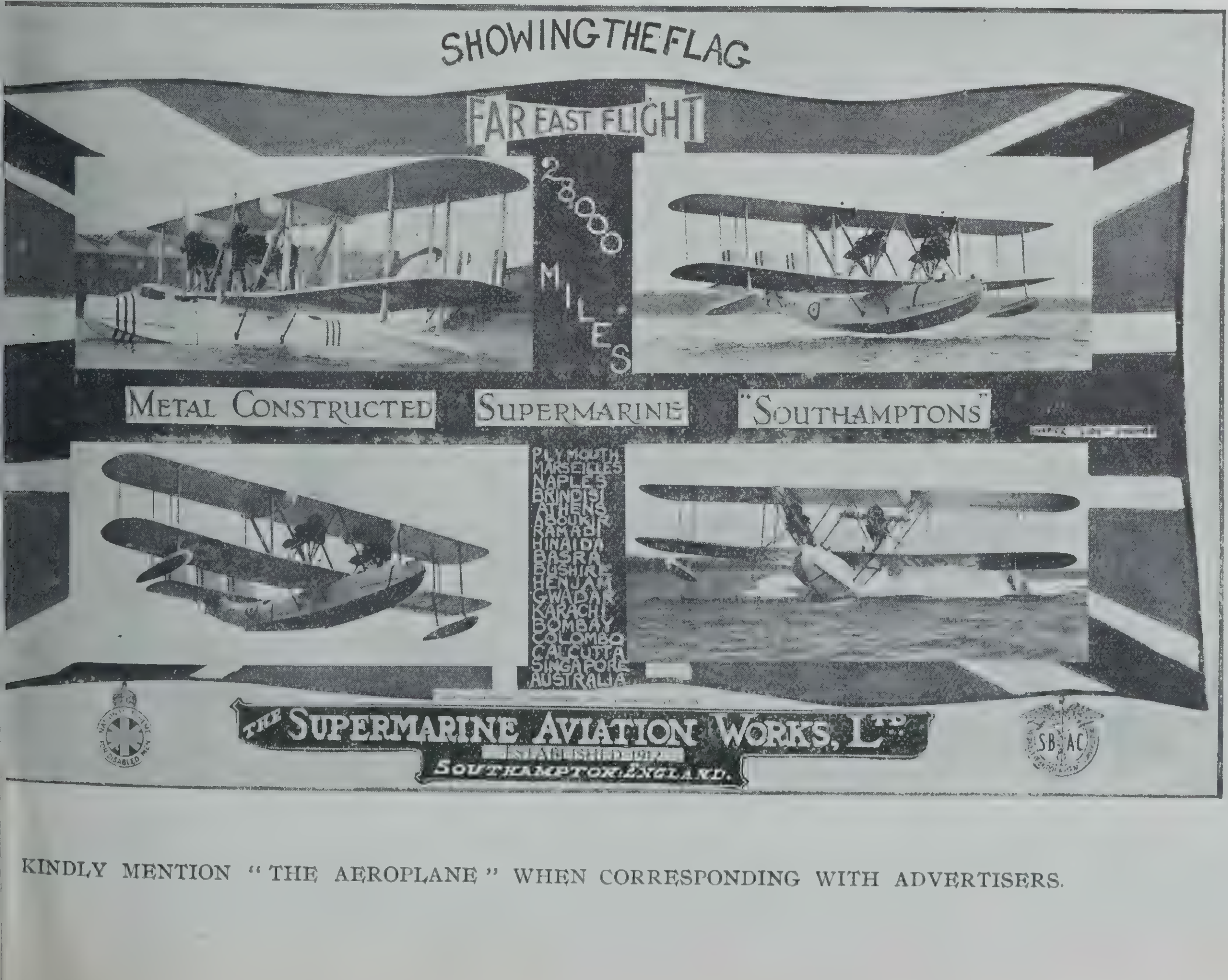


COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 14; Monday, 35; Tuesday, 38; Wednesday, 34; Thursday, 33; Friday, 37; Saturday, 36.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 93, passengers 802; freight 32 tons.

AIR UNION:
Paris—London and return: Machines 53, passengers 300, freight 12 tons.

K.L.M.:
Amsterdam—Rotterdam—London and return: Machines 24, passengers 163, freight 5½ tons

SABENA:
Brussels—London and return: Machines 17, passengers 90, freight 1½ tons.

DEUTSCHE LUFTHANSA A.G.:
Amsterdam—Loondon and return: Machines, 24, passengers 57, freight 3 tons.

MISCELLANEOUS:
British machines 8, passengers 7.
Foreign machines 8, passengers 4.

Total number of trips by British Machines, 101, carrying 809 passengers. Foreign Machines, 126, carrying 614.

COMPARATIVE FIGURES.

Week ending Sept. 8:
Machines, 227; Passengers, 1,423; Crews, 397; Total personnel, 1,820.
Corresponding week, 1927:
Machines, 144; Passengers, 941; Crews, 266; Total personnel, 1,207.
Corresponding week, 1926:
Machines, 167; Passengers 657; Crews, 193; Total personnel, 850.
Corresponding week, 1925:
Machines, 136; Passengers, 607; Crews, 184; Total personnel, 791.
Corresponding week, 1924:
Machines, 137; Passengers, 572; Crews, 165; Total personnel, 737.
Corresponding week, 1923:
Machines, 138; Passengers, 549; Crews, 223; Total personnel, 772.
Corresponding week, 1922:
Machines, 121; Passengers, 411; Crews, 215; Total personnel, 626.
Corresponding week, 1921:
Machines, 96; Passengers, 224; Crews, 120; Total personnel, 344.
Corresponding week, 1920:
Machines, 115; Passengers, 285; Crews, 142; Total personnel, 427.

Note.—In addition to the Croydon traffic shown above, K.L.M. have during the past week run 12 machines, carrying 4 tons of newspapers between Lympne and Ostend.

Croydon Notes.

The event of the week—Mr. C. D. Barnard's arrival from India after four and a half days' flying—at 20.12 hrs. on Thursday evening scarcely attracted as much public attention as it deserved. Doubtless it would have attracted greater attention had the Duchess of Bedford returned in the *Princess Xenia*.

Apart from requiring a good clean up, the *Princess Xenia* looks in perfect condition. Mr. Barnard, however, flew it down to Bristol on Friday afternoon, where the engine will be given a thorough inspection.

The Avro Avian on which Lt. Haya and Senor O'Gara have made their successful tour of Europe has spent most of the week at Croydon Aerodrome, and its general condition has been a subject of remark. It looks more like a machine prepared for exhibition than one that has been engaged on an extensive tour.

Imperial Airways are for a time short of one Argosy, which came to grief taxying at Le Bourget on Monday. Her tail hit a couple of bumps, and thereafter descended into a deep "pot-hole," which arrested the tail-skid while the greater part of G-EBOZ went on, with serious consequences to the after section of the fuselage. It is fortunate that this accident should have occurred at the end of rather than in the middle of summer, as the machine will be out of commission for some time while the fuselage is being rebuilt.

On Thursday of this week Mr. Dismore, piloting
Handley Page W10 G-EBMR, left Croydon at 07.15 ho
and reached Zurich at 11.01 hours, with stops at Paris
Basle. He left Zurich at 11.28 hours and returned to
don, where he arrived at 19.28 hours. The distanc
Zurich is a little over 600 miles, and the over-all time
the return trip was only 12 hrs. 13 mins., which is p
good going.

A.D.C. Aircraft Ltd. have recently fitted a Cirrus Mk.I
Lt. R. R. Bentley's Moth, and have provided this mac
with a spinner and an entirely new type of cowling.
certainly looks extremely neat, and is said to have not
increased the speed of the machine. A spinner improve
look of the Moth quite appreciably, and after having
this example doubtless quite a number of Moth owners
be wanting a similar arrangement on their own machine

AGENCY BUSINESS.

What is claimed to have been the first sale by an accre
Moth agent in Canada is that of a slotted Moth to Me
Greenfield and Pickering, pioneer mail carriers and freig
of the Yukon, made by Dominion Airways of Vancouver,

The Moth will be equipped with heated cockpits and i
changeable wheel, float and ski undercarriage.

That sales of aircraft should now be made by agents,
like automobiles and cycles, is the best possible sign
aviation is becoming a commercial proposition.

A RUSSO-ITALIAN STUNT.

Statements have been made that the Italian Govern
will abandon the construction of airships after the co
tion of the ship now being built at the State Airship Fac

This airship is being sold to Russia and there are rum
that it will be used on a Polar Expedition to be le
General Nobile.

MORTGAGES AND CHARGES.

AUSTER LTD.—Debenture charged on the company's undertakin
property, present and future, including uncalled capital dated Au
1928, to secure all moneys due or to become due from the com
to Barclays Bank Ltd.

PERSONAL NOTICES.

DEATHS.

ALDRIDGE.—On Sept. 2, at Great Olen, Leicester, as the result
flying accident, George Herbert Aldridge, Plt. Off., Auxiliary
Force.

FLETCHER.—On Aug. 31, at Amman, Palestine, as the result
flying accident, L-AC. Frederick William Fletcher, R.A.F.

JOHNSTONE.—On Aug. 31, at Grantham, as the result of a
accident, Edward Leb Johnstone, Plt. Off., R.A.F.

RIESS.—On Aug. 30, at Nocton, Lincolnshire, as the result
flying accident, James Graydon Reiss, 2nd Lt., 20th London
T.F., and Plt. Off., R.A.F.

SAUNDERS.—On Aug. 31, at Amman, Palestine, as the result
flying accident, Sjt. Victor Robert Saunders, R.A.F.

STEVENS.—On Aug. 29, at Abu Sueir, Egypt, as the result
flying accident, L-AC. Sydney Charles Stevens, R.A.F.

FORTHCOMING MARRIAGE.

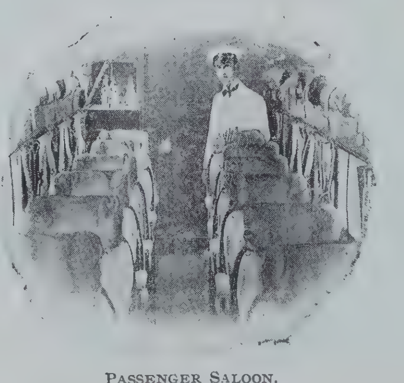
BARLOW—ANDERTON.—The engagement is announced of
Off Richard Hugh Barlow, R.A.F., elder son of Col. Sir Hilary
Barlow, Bart., C.B., C.M.G., and Lady Barlow, of Thruxton, An
to Rosamund Sylvia Anderton, younger daughter of the late Mr.
Anderton and Mrs. Temple, wife of Lieut.-Col. R. D. Temple,
of Hyde Hall, Great Waltham

BIRTHS.

DAWSON—On Sept. 6, at The Manor House, Hamble,
Félicité, the wife of F. G. T. Dawson—a son.

LAMBIE.—On Sept. 4, at "Conniscliffe," Darlington, to Shelley
of Flg. Off. J. Lambie, R.A.F.—a daughter.

O'MALLEY.—On Sept. 5, at 27, Welbeck Street, to Althea
Faulks), wife of Flt. Lt. C. J. S. O'Malley, R.A.F., Medical Bra
a daughter.



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THE BRITISH AIR LINE TO THE CONTINENT.

IMPERIAL AIR WAYS.

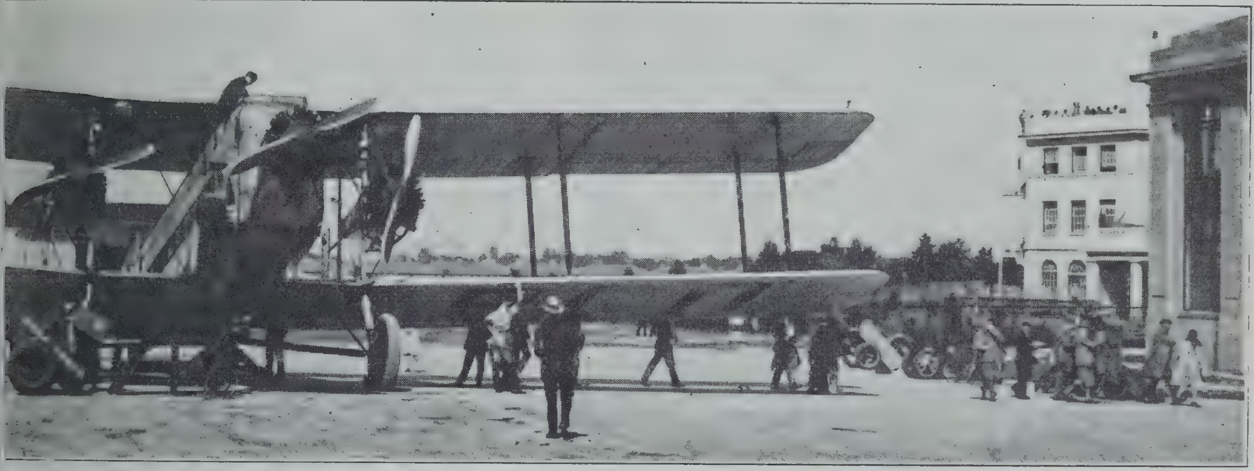
THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXXV. No. 12. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

> ". . . . THREE OF YOUR ARGOSIES
> "ARE RICHLY COME TO HARBOUR SUDDENLY."
>
> (SHAKSPEARE—*Merchant of Venice.*)



A DIVIDEND-EARNER :—One of the three Armstrong-Whitworth Argosies (Armstrong-Siddeley Jaguar engines) of the fleet of Imperial Airways Ltd., which firm has just unexpectedly declared a dividend. The machine is here seen disgorging passengers and freight at the London Terminal Aerodrome at Croydon. A catalogue of the fleet of Imperial Airways Ltd. is published as a note to a speech by Sir Eric Geddes which appears in this issue.

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A.V

SEPT. 19, 1928.

THE AEROPLANE

Incorporating
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ON IMPERIAL AIRWAYS.

uite one of the most important steps forward in the ory of British Aviation has been the declaration of a dend by Imperial Airways Ltd. for the year ending ch 31, 1928. There are many conflicting ways of looking ritish Civil Aviation, and figures can be wangled to show hing that one likes, but sound conservative business men the directors of Imperial Airways Ltd. do not declare vidend for the fun of doing so, and they do not pay out ey which their firm has not got and has not earned. So may assume safely that our one and only air line is now e considered among the regular commercial assets of the pire.

course the dividend could not have been paid without Government subsidy. That is to say, the £72,567 4s. 6d. ch appears in the balance-sheet as profit for the year, and ides the £23,682 16s. 2d. which is consumed in paying less income tax on the firm's capital, really means that ead of spending all the Government subsidy the firm aged to run from March, 1927, to March, 1928, on a net represented by the difference between the Government idy (which is not shown in the balance-sheet issued by Board) and the £72,000 odd aforementioned, which is vn as a profit.

a matter of fact, the whole thing is considerably more plicated than even this appears to be, because that 000 odd is only a sort of secondary profit after deducting directors' fees, insurance, inauguration expenses in the Middle East, reserve for obsolescent aircraft and engines, and depreciation of premises, plant, etc., from the sum of £132,550 0s. 6d., which is the profit on a Trading Account which is not published either to the public or to the shareholders. And it is this unpublished Trading Account which contains all the really interesting things about the firm's transaction.

SUBSIDY AND PROFIT.

The reasons for not publishing it are quite sound. Although Imperial Airways Ltd. is a public service, and therefore the property of every citizen of the United Kingdom, because it draws the Government subsidy, and although as a private company shareholders would seem to have a right to know how their money is spent, the future success of the Company as a genuine commercial undertaking depends very much on keeping its competitors from knowing how it manages to run its machines at a profit. Every business has its trade secrets, and the trade secret of Imperial Airways is knowing how to run economically.

The actual subsidy paid to Imperial Airways was £137,000 for its European work and £93,600 for the Middle East section, making £230,600 in all. Deducting from that the £132,550 which is classed as profit on trading, and neglecting the odd sixpence, one discovers that the actual loss on running expenses must have been £98,050.

COME TO HARBOUR.—One of the Imperial Airways Argosies (Jaguars) at Croydon, disgorging her load of passengers.—*("Aeroplane" photograph.)*

That represents the difference between actual receipts in the form of passenger fares, freight charges, special charters and all other sources of ordinary commercial income, and the actual expenditure in petrol, oil, wages and all overhead charges,—other than those shown in the published profit and loss account.

One has no inside knowledge of any figures, but that £98,050 might very well be absorbed in over-head charges and so it is fairly certain that most of the firm's machines have been during the year 1927-8 carrying loads which have at any rate paid for their petrol and oil and overhauls. And thus we see that we are getting quite near the time when the firm will be able to run without subsidy as an ordinary commercial undertaking.

Systems of Subsidy.

In principle one has always been opposed to spending public money in subsidising private commercial ventures. But there are certainly circumstances under which such subsidies are justified. For example, we should not even yet have our high-speed ocean liners if it were not for the enormous Government subsidies paid in the form of mail contracts to such lines as the Cunard, the Union Castle and the Peninsular and Oriental.

The system of subsidising steamships is certainly very different from that under which Imperial Airways Ltd. is subsidised. The Government buys from the steamship companies, at an agreed price, so many cubic feet of space in their ships. And the Post Office either fills that space with mail-bags or leaves it empty, according to the amount of mail matter which the public happens to send on any particular voyage. And one does not imagine that the amount of space bought has ever come anywhere near being filled.

As one remarked by-the-way in The Aeroplane last week, a correspondent in the United States has said that the air-mail contractors in that country are making so much money out of the Government that they feel that they ought to be in jail. The system under which these contractors are paid is another method of subsidising a private concern doing a public service.

The American air mail contractors are paid so much a pound for mail matter actually carried, so that they do in fact only get paid for work actually done. But, as one firm carries a letter over one section of a route and another firm carries it over another section and yet another firm carries it over another section, the Government actually pays three times over for carrying one letter which covers the whole route, and the supplementary fee which the sender of the letter pays for air transport is not enough in most instances to cover its own fraction of the three fees paid by Government.

That is to say, supposing the contract price with each line is a dollar a pound for mail matter, which is about average, the Government actually pays three dollars carrying one pound of mail say from New York to Sea or New York to Los Angeles, as three different lines concerned. The standard supplement for air mails is cents per ounce, which is eighty cents per pound, and the Government loses something over two dollars on e pound of air mail carried. Which represents quite a lo dollars in the year's working, considering that the w great American nation is now wide awake to the benefi air mail lines, even though it is not doing much in passen carrying.

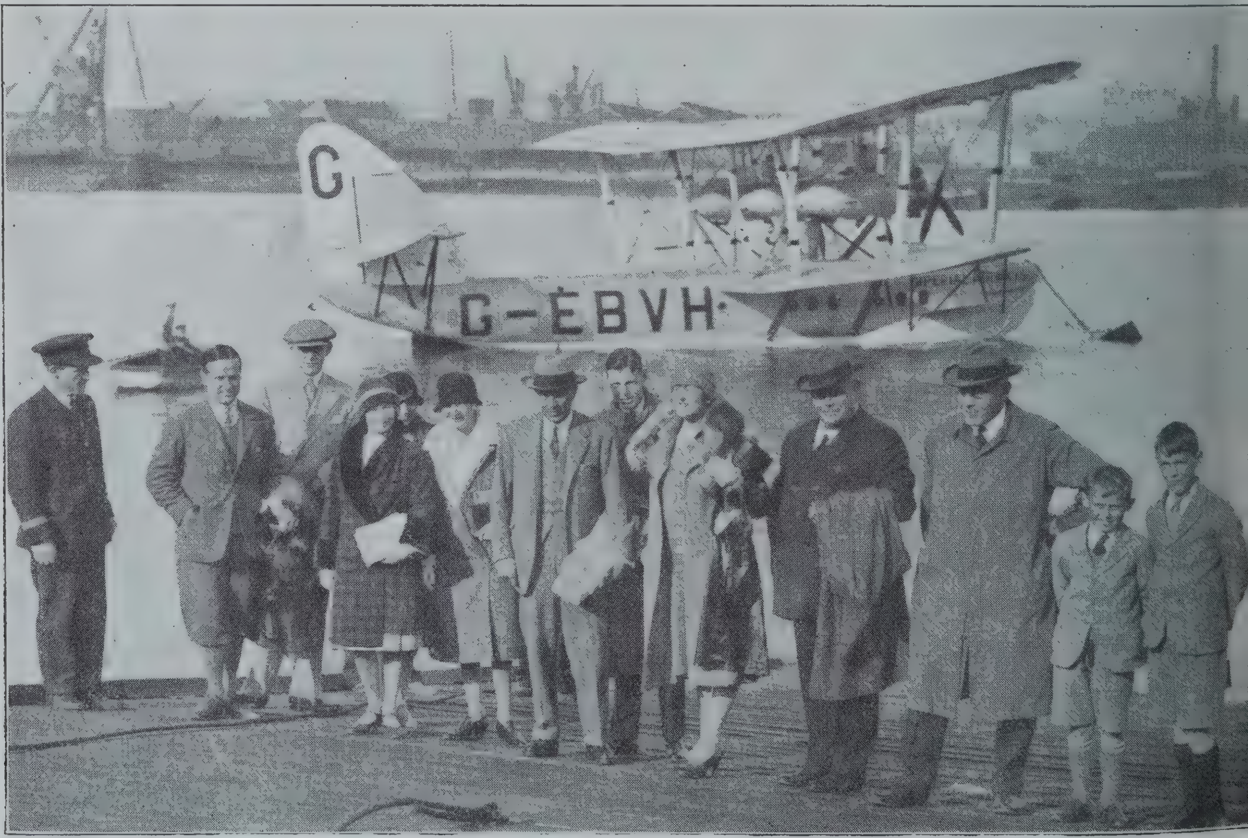
The Germans and French and Italians subsidise their lines, one believes, purely on a basis of miles flown machine, regardless of load or power. This gives sin so much money per machine-mile.

We vary that by subsidising Imperial Airways Ltd. o basis of miles flown multiplied by the horse-power in machines, or what is known as horse-power-miles. That the effect of encouraging the building of big machines w are capable of carrying a large load, and has produced Armstrong Whiteworth Argosies and the De Havill Herculeses as the result of co-operation between the airc designers of those firms, as representing the technical of design, and the engineers of Imperial Airways Ltd. representing experience in the maintenance of aircraft in the qualities which constitute a good carrier of freight passengers.

What Subsidies Produce.

Our method of subsidising steamships has resulted in having the finest steamship service in the World. American method of subsidising air lines has resulte quite an appreciable amount of good work done in moting the internal commerce of the United States and the development of good reliable mail-carrying aircraft engines. Also it has done an enormous amount to awa the population of the States to the all-round value of transport.

The German and French methods have produced s good aeroplanes and have kept in service a lot of bad which ought to have been burnt years ago. Because th countries are so large and there are so many air lines ning all over them, these aircraft, good and bad alike, accustomed the populations of those countries to the ide air transport.



AN IMPERIAL AIR WAY.—Sir Eric Geddes, the retiring Chairman of Imperial Airways Ltd. (with his coat over his arm), and his brother, Sir Auckland Geddes, with their families and party, about to embark in the Short Calcutta (three Jupiters) for their trip to the West of Scotland (described elsewhere). Mr. Bailey (pilot) and Major Brackley (Air Superintendent of I.A. Ltd.) are on the left of the picture.

Still the best!

Reliability, efficiency, speed—the Napier aero engine has proved its amazing superiority in these directions. No other engine has been so consistently successful.

The following are Press comments on the Napier—the tried and proved engine:

Reliability

"Its reputation is based on the fact that the Lion is now recognised as unsurpassed for reliability by any engine in the world."

Aeroplane, 7 Dec., 1927

Efficiency

"The Napier engine must be very nearly the most efficient piece of motive machinery the mind and skill of man has yet evolved."

Birmingham News, 25 Feb., 1928

Speed . . .

"The Napier Lion aero engine is perhaps the most well-known of 12-cylinder engines, and the amazing speeds that have been attained both on land and in the air with this engine testify to its excellent balance and high power weight ratio. It is little to be wondered at, therefore, that these Napier aero engines are in wide demand throughout the world."

Cars and Motor Cycles, 28 June, 1928

For aircraft, where reliability, efficiency and speed are the main considerations, the Napier is the first choice.

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Also the bad aircraft or bad piloting or bad maintenance of some of these subsidised Continental lines have accustomed the people of the countries in which they crash to being killed in aeroplane accidents. This latter is an important point, because no method of transport ceases to be an adventure and becomes a common way of travelling until people have become accustomed to being killed in the vehicles which are used. Even bicycles did not become vehicles in common use until being killed in a bicycle accident ceased to be interesting. To that extent, perhaps, the French and German methods are justifying themselves.

Our Success.

Our system of subsidising Imperial Airways Ltd. has resulted in our producing aircraft which can carry enough passengers and goods to pay their way as commercial vehicles. In this we are ahead of the World.

Also, thanks to the extraordinarily skilful organisation of the engineering section of Imperial Airways, and thanks to the high level of its general business organisation, we have learned how to run an air line with the greatest degree of economy. Here also we are ahead of the World.

To that extent the public money which has been spent in subsidising Imperial Airways Ltd. can be justified.

Unfortunately, because of our geographical situation, our one and only air line covers only about seventy miles of our own country and so it does little to popularise aviation. And because our aircraft are run with the safety and regularity of our railways, their doings are of no interest to the ordinary newspapers. Perhaps if we killed more people the population would become more accustomed to the idea of flying. But, because the machines of Imperial Airways Ltd. have not killed a passenger for three years (touch wood), the people of this country hardly know that Imperial Airways Ltd. exist.

When one tells persons who are not interested in aviation that for some months past over two thousand people have been crossing the Channel by air every week, they merely look goggle-eyed and slightly incredulous. The average person seems to think, if he or she thinks at all, that the figure is much nearer two hundred passengers per week across the Channel. It is not until in a fit of enthusiasm the man-in-the-street tries to book a passage on an Imperial Airways' liner to the Continent that he realises that those who are already enthusiastic have booked all the available accommodation for about a fortnight hence and that if he really wants to go by air he will have to take his chances in a French machine.

Imperial and Foreign Airways.

The sad thing about Imperial Airways is that the majority of their passengers are not English. More and more English people are travelling by air, but a year or two ago there was too much truth in Mr. Handley Page's jest that our air line existed for the sake of paying about £9 a head to every American who flew to France.

On the whole it is rather difficult to justify the existence of the European lines of Imperial Airways at all. We only run from London to Zurich, *via* Paris, and to Cologne. Most of the people who use those lines only do so as a form of joy-riding, though an increasing number of people uses them as a definite way of saving time on business journeys. The real justification of those lines is that, as aforesaid, they have taught us more than any other country knows about how to build commercial aircraft and how to run them commercially. That knowledge will not attain to its full value until we run a real Imperial air way from England to Australia and from England to the Cape.

Obviously the difficulty about running such an Imperial air way is that we cannot get to any of our possessions overseas without flying over foreign countries. And there is nothing which the essential Englishman hates so much as being under an obligation to anybody. He never minds paying for what he gets. But he prefers taking what he wants by force of arms without paying for it.

We cannot very well at this stage of the development of civilisation and in the face of the League of Nations and the Peace Pact conquer a line of aerodromes through France to the Mediterranean, or even through disarmed Germany and Austria to the Adriatic. So, even if we are prepared to pay for the privilege, we must still be under an obligation to France or Germany before we can get within flying distance of Malta and Egypt—and Egypt is not really a British possession.

The proper route for an Imperial air way is from London to Marseilles by land machine with a stop at Paris, and thence by big flying-boat by way of Malta and Cyprus, branching off either to Alexandria for the Cape or to Jaffa for Baghdad and the East.

One of the difficulties about running a line across France is that although we can run passengers straight through from London to Marseilles, just as we run through to Zurich, we are, one gathers, forbidden to pick up passengers in France, for example at Le Bourget, for transport to Marseilles or Zurich as the case may be. Quite reasonably the French insist that internal air traffic in France be conveyed by French air lines. And equally reaso we on our part do not feel like taking the responsibil sending our passengers on the Imperial air way th France in French aircraft.

The Good Time Coming.

However, some day we shall get over all these diffic including the difficulty of getting across Persia. A Imperial air way to Australia with a branch to the Ca just as inevitable in the development of the World a our great steamship lines. And because we have gone our development steadily and slowly, we shall even have the best air line in the World, just as we hav best railways and the best steamship lines.

The directors of Imperial Airways Ltd. have been h abused by all kinds of people. They have been abuse not buying more machines, and for not buying dif types of machines, and for not running perfectly useles lines all over the British Isles, and for not spendin British tax-payer's money recklessly in developing air in overseas dominions which can perfectly well afford t sidise air lines on their own accounts. But in spite the abuse and intrigue, the directors have stuck stead their policy of slow and sure development. And than the able general management and engineering manag over which they have worked they are now very close t point of reaching commercial success.

The year 1927 was not a good year for flying. The we was consistently bad and the increase in passenger freight traffic was quite small compared with what i been during the past six months. Consequently we reasonably look forward to a vastly better showing whe balance-sheet for 1928-29 is produced.

In the meantime the directors deserve to be congratu on the good work which they have done up to the prese

Sir Eric Geddes.

At the fourth Ordinary General Meeting of the Com on September 7, Sir Eric Geddes, who has been Chairm the Company for the past four and a half years, anno his resignation. Though he did not say so, the genera pression is that he desires to devote his energies t further improvement of the condition of the D Company.

His resignation will certainly be deeply regretted by who have worked with him in Imperial Airways. Few have had such great tasks laid upon them as has Sir since those days when he left the North-Eastern Railwa became Mr. Lloyd George's "push-and-go man" in va Government departments during the War 1914-18.

Like all strong men he has made enemies. But he ha made a number of firm friends. And where he ha made friends, he has, at any rate, earned the admi and esteem of people who have been forced, often a their will, to recognise the fact that he has succeed every task which he has undertaken.

He has that talent which is so necessary, either in merce or in war, for recognising when a man under h a good man and giving that man a free hand to do hi in his own way. And, as those who read his speech a General Meeting will perceive, he does not grudge to those who are worthy of it. One can only hope having acquired so much valuable experience of comm aviation during these past years he will not lose inter flying but will at some future period again apply his ability to the further improvement of commercial flyin

Although the proceedings at the General Meeting a the Extraordinary General Meeting which followed it already appeared in print in the public Press, one that for purposes of historical reference those procee must be placed on record in THE AEROPLANE and so will be found following these notes.

All who realise the importance to the British Emp the development of Commercial Aviation will join in gratulating the directors and the management of Imperia ways on the good work which they have done an doing.—C. G. G.

THE MEETINGS OF IMPERIAL AIRWA

Imperial Airways Ltd. was formed in April, 1924, a result of the Hambling Committee which sat in 1923 quire into and recommend to the Government the best of developing Commercial Aviation. Sir Eric Geddes, now resigns the chairmanship in order that he may gi undivided attention to the Dunlop organisation, has chairman since the company's formation.

The financial results for the four years have been :— year, £15,000 loss; second year, £20,000 loss; third £11,000 profit; fourth year, £72,500 profit.

The percentage of scheduled flights completed ha creased from 75 per cent. in the first year to 93 per ce the fourth year.

The passengers carried during the four years have bee

Fairey "III F." *General Purpose Type.*

The Fairey Aviation Company Ltd.,
Hayes, Middlesex.

FAIREY

First year, 11,170; second year, 11,529; third year, 16,807; fourth year, 25,313.

In over three million miles flown there has been only one fatal accident amongst those 64,819 fare-paying passengers carried.

Hereafter follow the speeches made at the Ordinary General Meeting and at the Extraordinary on Sept. 7 :—

The Chairman's Speech at the General Meeting.

Ladies and Gentlemen,—May I explain how I propose to deal with the business before the Meeting, and the Extraordinary General Meeting which follows, in the speeches which I shall make?

I propose first to deal with the Accounts and other matters which come before the General Meeting and to invite you to pass the Accounts.

I then propose, at the Extraordinary General Meeting, to explain the new proposed Agreement with the Government to give some idea of the future which we can envisage from its operation, and to invite you to pass the necessary alterations to the Articles of Association which in fact will, when confirmed, be your ratification of the Agreement we have negotiated.

Ladies and Gentlemen, I assume that you have all received a copy of the Accounts which have been published, and, with your approval, I propose to adopt the usual procedure of taking these as read.

Apart from the great improvement in the trading of the Company, about which I will speak to you later, I am sure you will feel gratified at the vastly improved financial position of your Company. The accounts are made up strictly on our usual sound and conservative basis. I will now take you briefly through them.

Balance Sheet.

On the asset side of the Balance Sheet you will see that aircraft and engines—less cost of units written off, stand at about £250,000—nearly £6,000 less than last year's Accounts. There is no physical deterioration, and Obsolescence is taken care of on the other side of the Balance Sheet in the Obsolescence Reserve of £91,565.

During this year no units fell due for replacement, and the draft upon the obsolescence reserve for units written off amounts to only £4,886. In previous years the write-off has been heavier.

Your plant, machinery and equipment have been depreciated on the same basis as last year; the large addition during the year of £24,800 in this item is mainly accounted for by the capital expenditure for your Middle East service and by certain additions modernising your engineering plant and equipment on the European services.

The valuation of stores and spare parts has been carried out on our usual conservative basis.

The Sundry Debtors amount to £31,000, the small increase of about £5,000 being due to the greatly increased turnover.

Liquid Cash Position.

You will notice that the Cash and Investments stand at over £230,000, compared with £152,000 last year. Your Middle East service has been completely capitalised, and a comparatively small expenditure of capital will be required for the continuation to India, about which I will tell you later on.

I should point out that the item of Cash and Investments includes the obsolescence reserve of over £90,000, for which, as usual, no specific investment is earmarked.

There is still no necessity for the Board to call up the 5s. per share outstanding, and I would again assure you that the Call will only be made when your Directors are satisfied that it can be profitably employed in the development of your Company.

You will notice that, in addition to extinguishing the £24,171 debit standing in the Profit and Loss Account, we have written off one half of the items standing against Preliminary Expenses and Underwriting Commission, absorbing £20,663. I hope that these two items will disappear next year, and that we shall be able as time goes on to accumulate some prudent Reserves.

I point out also that there is no item for Goodwill in the Balance Sheet, and the value of this must be considerable in view of the world-wide reputation of your Company and the greatly extended security of tenure provided by the new Agreement concluded with His Majesty's Government.

You will notice that the Inauguration and Survey Expenses of your Middle East Route are again written off at the same rate as adopted last year. As we survey and inaugurate other new routes, however, this item will have further charges added to it, and it may be desirable to reconsider this basis of extinction in future years.

If you will look at the other side of the Balance Sheet you will notice a satisfactory decrease in Sundry Creditors, which amount to just over £44,000. The Obsolescence Reserve, as I have said, stands at £91,500, of which over £40,000 is attributable to the year under review.

Profit and Loss Account.

Turning to the Profit and Loss Account, you will notice that a credit balance of over £132,000 is brought forward from the Trading Account as compared with £54,000 last year. This satisfactory improvement represents great progress, because it means that the gross profit on which the operations of your Company are being carried shows continuous improvement; in fact, it has slightly more than doubled this year. I told you last year that this was a most hopeful sign for the future of Civil Aviation, because it meant that the existing fleet could cater for additional traffic independently of, and without any subsidy on, the additional miles flown; and, in fact, during the year under review, your Company carried out nearly 33 per cent. more unsubsidised flights than in the previous year.

The investment income is that derived from the investments shown on the Balance Sheet, and, in passing, I draw attention to their excellent character, and remark that they stand at slightly below their market value on March 31, 1928.

Bank and other interest and transfer fees are items which call for no comment.

On the other side of the Profit and Loss Account you will notice that the Directors' fees amount to £5,500, although they are entitled under the Articles of Association to £6,500. Those of you who may compare this with the last year's figure for this item will doubtless remember that we waived a large sum on this account during a period when results of the Company were unfavourable. With the increased perity of the Company and its still better prospects and its wide- activities, I am sure you will agree that the really arduous labou your Board should be more suitably remunerated. It is only by increasing attention to your affairs that the favourable results atta can be still further enhanced.

Aviation and General Insurance amounts to £8,700 odd, and is little more than last year in total, although it covers the flying o tions of your Middle East fleet for a whole year as compared with inclusion of only a small portion of the Middle East operations in year's accounts.

Your Directors believe that no other Air Transport Compan the world enjoys such favourable insurance.

The item of £2,466 odd, "writing off a portion of the inaugur expenses of the Middle East Route," I have already dealt with.

Obsolescence, as I mentioned when speaking of the Balance S amounts to about £40,000. The rate for this obsolescence, alth calculated on the same conservative basis as your last year's acco is lower than it will be when the Company is in a position to take advantage of the terms of the new Agreement with the Govern which I will explain fully at the Extraordinary General Meeting w immediately follows this one. Under that Agreement a la accelerated obsolescence rate is to be applied to your aircraft s to allow us to take quicker advantage of the continued developmen the science of aircraft design. Financial provision has been for doing so. This does not mean, however, that aircraft so rep will be unfit for further service; on the contrary, they will be able for the development of other services, such as "feeder" etc., free of their heavy burden of obsolescence.

The depreciation of premises, plant, etc., shows a considerabl crease over last year, due to the larger capital value of the necessary for the proper development and to the advantageous pre which we have acquired in Paris.

The sum expended under the item of maintenance of our amounted to £78,174, compared with £57,800 last year. The increa due to the fact that the Accounts under review include a full operation of the Cairo-Basra service and a further increase ove previous year in ton-mileage carried in Europe.

Your Board have, with your approval, consistently adhered to policy of the highest possible standard of maintenance. The co maintenance of the fleet per ton-mile continues to improve theless, although, as would naturally be expected, not at the rate as was achieved during the early days of reorganisation.

The balance of profit for the year carried to the Balance She you will notice, £72,500 odd, compared with £11,400 odd last ye result which I am sure will give you great satisfaction.

And this brings me to the end of my review of the Accounts are before the Meeting.

We recommend the payment of a dividend of 5 per cent. upon ordinary shares of the Company, absorbing £23,682.

I would remind you that it has been done after extinguishin debit to Profit and Loss Account, substantially writing off Prelim Expenses, Underwriting Commission, and Inauguration and S Expenses, and providing liberally for Obsolescence.

These items together amount to the substantial sum of £87,300, le us with a carry-forward of £4,049, and this after we have taken and generous care of all depreciation.

I feel sure you will share the Board's satisfaction and pride at result.

Having said that, however, I do not feel that I have cor represented the position to you in its fully satisfactory state wi reminding you of what I said last year—that the change from oper at a nett loss to a gross profit was a most important turning- in the progress of commercial aviation. Not only has the turnin that point been maintained, but, as I have already said, the profit on which the operations are being carried out has sli more than doubled in the year under review compared with the pre year; and in recommending you to pay this dividend, I may say we look forward more hopefully to the future.

So much for financial results; and I now come to operations.

Traffic and Operation.

The remarkable regularity of our European services continu improve, in spite of the unfavourable weather conditions of the and in the Middle East, during the whole of the year under re your service has only once failed to make the advertised conne with the mail steamer, and has never failed to complete a serv

A little more than two years ago it was estimated that the of traffic increase on your European services, based on past experi was in the region of 10 per cent. per annum. I am glad to say this estimate has been greatly exceeded, due to our excellent se and high reputation, and the traffic revenue on the European se is now 60 per cent. higher than when we met here two years a

During the year under review, two interesting experiments undertaken. I refer first to the inauguration of the "Silver W de luxe services, which are now known all over the world. Th volved reducing the paying load of several of your largest ai on certain services, to accommodate a steward and a small b The results have proved that this was a wise sacrifice, and these tional comforts have played no small part in increasing the tra

Towards the end of the year we tried another experiment on Paris route and introduced a "Second Class" service with a re fare—second class only in that it leaves at a less convenient of the day: the designation does not apply to the aircraft emp on the service.

Coupled with certain other reductions in the passenger fares traffic during the past winter season was kept far above the of the previous winters, and your fleet was kept more occupied dur time which will always be a slack season, due to the climatic condi prevailing in the winters of Western Europe.

Your Company's record of safety continues to be one of which may feel justly proud. No transport organisation in the worl road, rail, sea or air—can expect to be entirely free from accid but the record of your Company for safety and regularity pla in the highest rank in the world.

CIRRUS

THE WORLD'S MOST RELIABLE ENGINE OF LOW POWER

MARK II: 75/85 h.p.—MARK III: 85/95 h.p.

In World Flights by Famous Pilots, in Air Racing, in the daily round of Club Work, for Service Training on Land and on Sea, in Great Britain, Europe, and throughout the whole World, the "CIRRUS" engine has given PROOF OF THE UTMOST RELIABILITY and economy together with an unequalled capacity for hard work under all conditions.

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Contractors to the BRITISH AIR MINISTRY and most FOREIGN GOVERNMENTS.
Constructors of "CIRRUS" and "NIMBUS" Aero Engines.
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Telephone—
Holborn 4076.

Telegrams—
Airdisco London.

Fleet.

As you will see from the back of the Directors' Report circulated to you, your Company has under construction three large aeroplanes for use on your European operations, and one new flying-boat, which, together with the two other flying-boats that will be taken over from His Majesty's Government under the new Agreement, form part of the fleet required for putting that Agreement into operation.

[The complete fleet of Imperial Airways (which has never before being published) is made up as follows :—

Three Armstrong Whitworth Argosies, each with three Armstrong Siddeley Jaguar engines giving 1,188 h.p. per machine. These are G-EBLO, *City of Birmingham*, -LF, *City of Glasgow*, and -OZ, *City of Wellington*.

Five De Havilland 66s (Hercules), each with three Bristol Jupiter engines, giving a total of 1,275 h.p. per machine. These are G-EBMW, *City of Cairo*, -MY, *City of Baghdad*, -MX, *City of Delhi*, -MZ, *City of Jerusalem*, and -NA, *City of Teheran*.

One Handley Page Hampstead, three Bristol Jupiters, 1,275 h.p., G-EBLE, *City of New York*.

Three Handley Page W.10s, each with two Napier Lions, giving 88) h.p. per machine, G-EBMM, *City of Melbourne*, -MT, *City of Ottawa*, and -MR, *City of Pretoria*.

One Handley Page Hamilton, two Siddeley Pumas and one Rolls-Royce Eagle VIII, giving all together 845 h.p., G-EBIX, *City of Washington*.

Two Handley Page W.8s, each with two Rolls-Royce Eagle IXs, giving 710 h.p. per machine, G-EBH, *Prince George*, and -BI, *Prince Henry*.

Two De Havilland 50s, one Siddeley Puma each, giving 240 h.p., G-EBFP and -KZ.

One Supermarine Sea Eagle, one Napier Lion, giving 440 h.p., G-EBGR.

Two Short Calcuttas, each with three geared Bristol Jupiters, giving 1,455 h.p. per machine, G-EBVG and -VH. One of these is probably called the *City of Alexandria*.

In addition there are under construction three Armstrong Whitworth Argosies, each with three geared Armstrong Siddeley Jaguar engines, giving 1,260 h.p. per machine. These will be named *City of Edinburgh*, *City of Liverpool* and *City of Manchester*.

[The Short Calcuttas will be used on a Mediterranean service, and not in the Persian Gulf, as commonly rumoured.—C. G. G.]

Relations with Government and other Air Companies.

I am happy to tell you that the relations between your Company and the Air Ministry continue to be of the most friendly nature, and I wish to acknowledge the broadminded and receptive manner in which the Secretary of State for Air, Sir Samuel Hoare, and his colleagues have received and considered our proposals.

I am pleased to say that our relations with foreign companies, whether working in co-operation with us or in competition, continue to be friendly, and continuous improvement is being made in regard to connections to distant places by co-operation with foreign lines.

Honour Where Due.

To Mr. Woods-Humphery, your General Manager, and his officers and staff, we owe a special tribute and thanks. Our pilots are magnificent, our technical personnel second to none. They are a splendid, able and devoted team. Your interests and those of civil aviation are always the sole guiding factor in this work. I wish here, on account of what I shall subsequently announce, to add my personal thanks for and appreciation of this work. No Chairman could have been better served, nor have been in happier relationship with his executive officers than I have been, and I wish publicly to thank Mr. Woods-Humphery and them for their invaluable assistance and co-operation.

I do so because I regret deeply to say that after most careful consideration I have felt obliged to notify my colleagues on the Board that I have decided to resign my directorship of your Company in the near future. I have come to the conclusion that I cannot afford the time to give adequate and increasing attention to the growing affairs of the Company and its more widespread activities. This very geographical remoteness alone makes this an impossible task for me.

Had the present satisfactory report not been possible, I would somehow have arranged to have continued at the helm, but I feel your ship is set upon a straight course and that fair weather is ahead. The voyage is a long one; the ship must have a Captain who can take the bridge on short notice at any time. I cannot do that, as my other obligations are heavy; so with much regret I must say "Good-bye," and thank you very sincerely for your kindness to me in the anxious days which are now over.

The results of this year are, so far, better than the results of the year under review, and I see no reason why those results should not continue. I hope and believe that the conservative policy which has brought about the steadily improving results, both operational and financial, will be continued. Many are the enticements and urgings of air enthusiasts to depart from that policy—to take a chance "and risk something," but in the policy of this Company such counsels spell disaster. In "Safety" Imperial Airways must take no "chances," nor "Commercially" in unfigured risks. Your Board has firmly refused to be led by argument or urged by criticism into gambles of any kind, and I challenge our record and reputation as second to none in civil aviation to-day. But the public and press must recognise that we are a commercial undertaking, though admittedly with an Imperial Mission. Sometimes the commercial side is forgotten by our critics.

The new Agreement with the Government, if ratified by you, as I have no doubt it will be ratified, is, in my judgment, a noteworthy milestone on the road to the commercial independence and success of civil aviation. Civil aviation will come truly into its own when London to the Cape and London to Australia by air are accomplished as regular commercial services. We are to-day laying the foundations of that structure soundly and well, and we are building the first story. That the other top stories will follow I have no doubt, and they will stand all square upon the foundations we have laid.

I have no doubt others will be tempted by our success to try building top stories too, but if they forget sound foundations they will fail. We have paid heavily for our foundations, and from now on we shall reap the reward of our labours. The results which have been achieved by Imperial Airways are due to continuous study of civil aviation since the end of the War, first by the constituent companies which formed Imperial Airways, and later by the most carefu ordinated study of the old and new data at our disposal, and ca cost analysis over a number of years; study by an organisation v is an established machine, working smoothly, with enthusiasm loyalty among its staff; and in the past, with dogged continui purpose, turning deaf ears to the croaker and to the sceptic.

The pioneers and enthusiasts in air matters do not necessarily pc the qualities successfully to develop civil aviation from a comm point of view. The organisation to do so cannot be built in a da a year. Personally—and I can look back upon a pretty long experience of transport, from the time I was 18—I have never countered a transport problem so full of pitfalls for the inexperie and I have the greatest conviction that the Government has extremely wise in recognising, as they have so clearly demonst by our extended Agreement, that at this stage in civil aviation a concern, with boundless enthusiasm and vision, but with inade experience and backing, is not so capable as we are of develo this new and wonderful service.

Many a heart-burning and much loss of money will be avoide the sound judgment of Sir Samuel Hoare, and I speak with very se conviction when I say that one of the most valuable assets w Imperial Airways possesses to-day is the accumulated knowledge experience which we can now place at the service of the Go ment and of civil aviation.

In saying "Good-bye" to you I feel that you are through your early difficulties. I again thank you from the bottom of my for your kindness and support to me at these meetings and throug the years between them. I wish to acknowledge the helpful kin and consideration throughout my Chairmanship of Sir Samuel H Sir Sefton Brancker and everyone at the Air Ministry.

To my colleagues on the Board I also owe a special debt of grati Our relationship has been throughout most cordial. On no question of policy have we differed, and I have throughout enj the unfailing kindness and support of each one of them in my co of the business of the Chair. I leave their councils with great re

You will see from the Directors' Report that the Board has co- as a Director my old colleague of the strenuous days of 1915 1916, Viscount Chetwynd. Lord Chetwynd, I am sure, needs no i duction to you. He has a wide and varied experience, boun energy and enthusiasm, and sound judgment, and a great recor achievement, and we are fortunate in that he is prepared to d a considerable portion of his time—as much as is necessary—to Imp Airways.

Lord Chetwynd, in accordance with the Articles of Association, mits himself to you for re-election to-day, and I feel sure he be unanimously re-elected.

Sir Herbert Hambling, Bart., seconded the resolution.

The retiring Directors, Sir George Beharrell, D.S.O., and the Visc Chetwynd, C.H., were re-elected.

The Auditors, Messrs. Whinney, Smith and Whinney, were re-elected.

[*The Chairman's Speech at the Extra-Ordinary General Me which followed will be published next week.*]

SIR ERIC GEDDES' TOUR.

The Short Calcutta flying-boat G-EBVG (three Br Jupiter engines), chartered by Sir Eric Geddes from Imp Airways Ltd., and carrying a party of ten, left Wools Southampton, on the morning of Sept. 14. Major H. Brackley, Air Superintendent of Imperial Airways, and Bailey, of the company's Southampton—Guernsey Ser were the pilots.

The Calcutta alighted at Tenby for lunch about noon on Loch Ryan, Stranraer, early the same evening. The n was spent at Stranraer.

On Sept. 15 the machine alighted off the coast at Bal trae and Sir Eric Geddes and his passengers landed paid a visit to Lord Inchcape at Glenapp Castle.

On Sept. 16 a trip was made inland and the Calc alighted on Loch Lomond—thereafter returning to Stran for the night.

The Calcutta left Stranraer at 11.10 hours on Sept. 17 Liverpool, where it arrived at 13.15 hours after flying aga a strong head wind through rain.

THE LIVERPOOL—BELFAST SERVICE

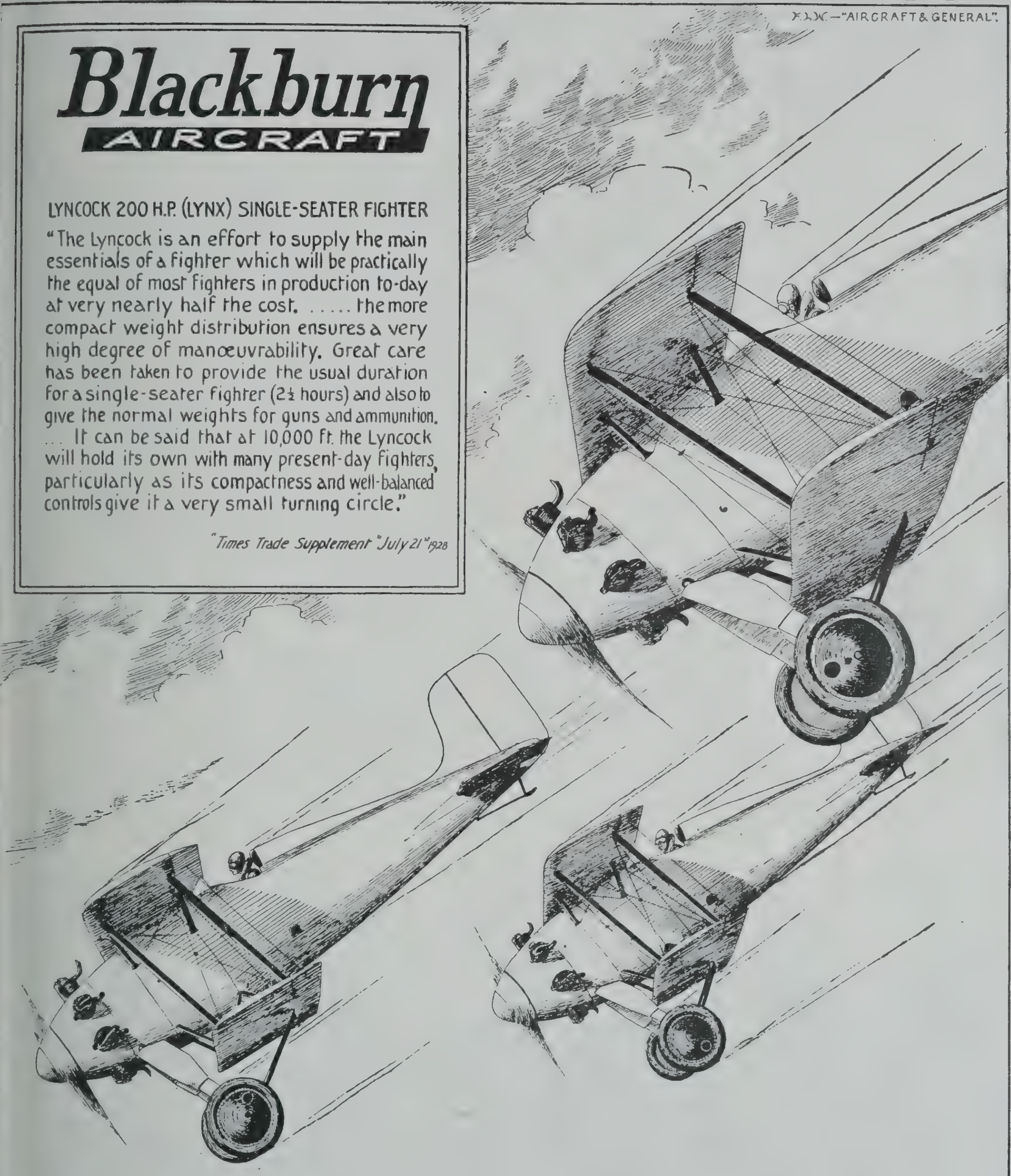
The necessary arrangements for the demonstration service between Liverpool and Belfast in connection the Liverpool Civic Week having been concluded to satisfaction of Imperial Airways Ltd., the following de are now announced by that firm.

The service will run daily from Sept. 24 to 29 inclus Passengers on the service to Belfast will leave Rockf Pier, Liverpool, by car each day at 09.45 hours for Liver Moorings, and the Calcutta flying-boat will leave the M ings at 10.00 hours, reaching Musgrave Channel, Belfast 11.45 hours. Cars will convey passengers from No. 3 Q Belfast, to Albert Square, Belfast, which will be reache 12.15 hours.

On the return journey cars will leave Albert Square 14.30 hours, the flying-boat will leave Musgrave Channe 15.00 hours, reaching Liverpool Moorings at 16.45 hours, car to Rockferry Pier arriving there at 17.00 hours.

The fare will be £3 10s. single, £6 10s. return; 30 lbs luggage are allowed free per passenger, and a charge of per lb. on any excess will be levied. Passengers wishin book seats may do so either through Imperial Airways I Airways House, Charles Street, London, S.W.1, or, on after Sept. 21, through The Liverpool Organisation, 3, I Street, Liverpool (Tel. Bank 5630), or Jas. Little and 1, Albert Square, Belfast (Tel. Belfast 2583).

Blackburn
AIRCRAFT



LYNCOCK 200 H.P. (LYNX) SINGLE-SEATER FIGHTER

"The Lyncock is an effort to supply the main essentials of a fighter which will be practically the equal of most fighters in production to-day at very nearly half the cost. ..... the more compact weight distribution ensures a very high degree of manœuvrability. Great care has been taken to provide the usual duration for a single-seater fighter (2½ hours) and also to give the normal weights for guns and ammunition. ... It can be said that at 10,000 ft. the Lyncock will hold its own with many present-day fighters, particularly as its compactness and well-balanced controls give it a very small turning circle."

"Times Trade Supplement" July 21st 1928

THE BLACKBURN AEROPLANE AND MOTOR COMPANY LIMITED
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London Office: AMBERLEY HOUSE, NORFOLK STREET, STRAND, W.C.2.

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THE ROYAL AIR FORCE.

The London Gazette.

Sept. 11.

General Duties Branch.—The following Plt. Offs. are promoted to the rank of Flg. Off.:—S. Pritchard-Barrett (April 10); T. C. Dickens (June 11); H. F. Surén (July 4); L. S. Tindall (July 10); G. H. G. S. Jenkins (July 10); J. Barton (July 10); G. A. G. Johnston (July 15); F. D. Biggs (Aug. 15). Flg. Off. A. K. Bamber is transferred to the Reserve, Class A (Sept. 10).

Flt. Lt. (Maj., R.A.R.O.) V. M. Kenny-Leveck, M.B.E., relinquishes his S.S. comn. on account of ill-health (Sept. 1); Flg. Off. D. Robinson (Lt., Glos. Regt., T.A.) relinquishes his S.S. comn. on account of ill-health (Sept. 12); Lt. J. D. Ainger, R.N., Flg. Off., R.A.F., relinquishes his temp. comn on return to Naval duty (Sept. 6).

Medical Branch.—Flg. Off. J. Hutchieson, M.B., is granted a perm. comn. in this rank (Sept. 12); Flt. Lt. (Hon. Sq. Ldr.) G. S. Ware, M.B., relinquishes his temp. comn. on completion of service and is permitted to retain the hon. rank of Sq. Ldr. (Sept. 11).

Chaplains Branch.—The Rev. J. G. Stephens, B.A., relinquishes his S.S. comn. on completion of service (Sept. 12).

Reserve of Air Force Officers.—General Duties Branch.—G. C. Holland is granted a comn. in Class AA (ii) as a Plt. Off. on probation (Aug. 27); Flg. Off. L. C. Burcher is employed with the Regular Air Force for a period of three years (Aug. 27); Plt. Off. F. Davison is promoted to the rank of Flg. Off. in the Special Reserve (Aug. 15). The following officers are transferred from Class A to Class C:—Flt. Lt. H. V. Stammers (Mar. 10); Flg. Off. A. A. B. Chipper (Aug. 30); Flg. Off. F. G. M. Sparks (April 6).

Medical Branch.—Flg. Off. E. D. Gray, M.A., M.B., relinquishes his comn. on completion of service (Sept. 11).

Auxiliary Air Force.—General Duties Branch.—No. 603 (City of Edinburgh) (Bombing) Squadron.—The following to be Plt. Off.:—E. S. V. Burton (Aug. 14).

Appointments.

Week ending Sept. 17.

General Duties Branch.—Wing Commanders W. V. Strugnell, M.C., to No. 9 Sqdn., Manston, 1/9. J. N. Fletcher, A.F.C., to Home Aircraft Depot, Henlow, for Administrative duties, 27/8.

Squadron Leaders W. Thomas, M.C., to No. 1 Stores Depot, Kidbrooke, 15/9. D. O. Mulholland, A.F.C., to No. 16 Sqdn., Old Sarum, 25/9. E. D. Atkinson, D.F.C., A.F.C., to No. 21 Group H.Q., West Drayton, 1/9.

Flight Lieutenants A. Hunter, O.B.E., to Home Aircraft Depot, Henlow, 17/9. A. J. Long, to H.Q., Halton, 17/9. T. S. Ivens, F. W. W. Wilson and R. V. M. Odbert, to A. and G. School, Eastchurch, 2/9. C. H. C. Woollven, M.C., to remain at H.A.D., Henlow, instead of to R.A.F. M.T. Depot, as previously notified. K. L. Harris, to No. 8 Sqdn., Aden, 24/8. O. E. Carter, to R.A.F. M.T. Depot, Shrewsbury, 1/9. R. J. M. de St. Leger, to remain at H.A.D., Henlow, instead of to R.A.F. Station, Kenley, as previously notified. C. G. Hancock, to A.A.E.E., Martlesham Heath, 16/9. F. W. Wiseman-Clarke, to H.Q., India, 16/8. W. B. Everton, to H.M.S. *Eagle*, 1/9. G. Y. Tyrrell, M.C., F. R. Wynne, M.B.E., and J. Silvester, to School of Photography, S. Farnborough, 8/9. L. W. Jarvis, to R.A.F. Depot, Uxbridge, 17/9.

Flying Officers A. C. Sharp, to A. and G. School, Eastchurch, R. L. Bateman, to No. 5 F.T.S., Sealand, 29/9. P. J. Stapleto No. 39 Sqdn., Bircham Newton, 31/8. A. M. D. Howes, to An Communication Flight, 17/9. N. R. Buckle, to No. 100 Sqdn., Bic 17/9. F. C. T. Rowe, to R.A.F. Station, Kenley, 16/9. R. H. C to No. 45 Sqdn., Middle East, 1/9. F. W. L. C. Beaumont, to R Depot, Uxbridge, 7/9. H. A. Evans-Evans, to E. and W. Sc Flowerdown, 27/8.

Pilot Officers G. R. Chameroy, to R.A.F. Depot, Uxbridge, P. C. Fair, to No. 207 Sqdn., Eastchurch, 11/9. D. J. T. Hayne No. 100 Sqdn., Bicester, 11/9. W. D. J. Michie, to No. 2 Sqdn., Man 1/9 J. C. B. Tinling, G. F. Simond, J. E. Markby, and A. le Upton, to No. 13 Sqdn., Andover, 1/9. D. M. Harrison, R. W Stevens, and J. B. Veal, to No. 4 Sqdn., S. Farnborough, 1/9. Smith and C. K. Turner, to No. 16 Sqdn., Old Sarum, 1/9. Hicks, M. C. Collins, C. L. Myers, and H. L. Piper, to No. 26 S Catterick, 1/9. J. C. K. Rogers, to R.A.F. Base, Calshot, 1/9. Clare, P. F. Luxton, and P. H. Smith, to No. 1 Sqdn., Tangmere, A. D. Bennett, A. G. Lester, and P. N. Sealy-Allin, to No. 23 S Kenley, 1/9. J. A. Greenshields and C. A. Pearson, to No. 32 S Kenley, 1/9. N. F. V. Henkel and L. W. Howard, to No. 43 S Tangmere, 1/9. L. V. Bennett and F. Wells, to No. 19 Sqdn., ford, 1/9. C. H. Appleton and H. P. Wilson, to No. 41 S Northolt, 1/9.

Stores Branch.—Squadron Leader W. C. Green, M.C., to N Stores Depot, Milton, 12/9.

Flight Lieutenant D. W. Dean, to H.Q., Inland Area, Stanmore,

Flying Officers G. C. Wilson, to R.A.F. Station, Worthy Down, J. H. P. Clarke, to No. 600 Sqdn., Hendon, 8/9.

Accountant Branch.—Pilot Officers H. A. Frost, to E. and W. Sc Flowerdown, 17/9. R. Trippett, to No. 4 Sqdn., S. Farnborough,

The Far-East Flight.

The four Supermarine Southampton flying-boats (N Lion engines) of the Far East Flight, R.A.F., under the mand of Grp. Capt. H. M. Cave-Browne-Cave, D.S.O., D. reached Singapore on Sept. 15.

Since the Flight left Cattewater on Oct. 1, 1927, it flown a total distance of 23,000 miles (184,000 engine m and there has been no mishap or mechanical trouble of kind.

The cruise has again demonstrated the skill and effici of the R.A.F. and the reliability of the British flying- and engines selected for the flight.

The Far East Flight will be based in Singapore and make long-distance cruises from that port from time to

The Air Manoeuvres in France.

Air Vice-Marshal C. L. Lambe, C.B., C.M.G., D.S.O., Vice-Marshal Sir John Steel, K.B.E., C.B., C.M.G., and Commodore F. V. Holt, C.M.G., D.S.O., accompanied three R.A.F. officers acting as personal assistants, flew f

THE FRENCH AIR MANŒUVRES.—Senior Officers of the R.A.F. who flew to France on Sept. 13 to watch the French Air Manœuvres. The group shows from left to right Inspecteur-Général Hergault, Air Vice-Marshal Sir John Steel, Monsieur Painlevé, Air Vice-Marshal C. L. Lambe and Air Commodore F. V. Holt.

ROLLS-ROYCE
AERO ENGINES

"Those who saw the beautiful 'Wizard' Monoplane fitted with this (Rolls-Royce) Engine leap skyward when the pilot opened his throttle gained some idea of what the 'F' Engine enables designers the accomplish."

Daily Mail
2nd July
1928

ROLLS-ROYCE LIMITED
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LONDON, W.1

Andover to Le Bourgêt in two Service Vickers Virginias on Sept. 13 to watch the French Air Manœuvres which began on Sept. 14.

No. 36 (Torpedo Bomber) Squadron.

A new R.A.F. Squadron, known as No. 36 (Torpedo Bomber) Squadron, has been formed at Donibristle, Fife, Scotland.

The new Squadron is administered by Coastal Area H.Q., and was formerly the Coast Defence Torpedo Bomber Flight. The Squadron is equipped with Hawker Horsleys and is commanded by Sq. Ldr. A. W. Mylne.

The World's Speed Record.

An attempt to beat the World's Speed Record will probably be made at Calshot at the end of this week. The attempt will be made on a Supermarine S.5 seaplane (Napier Lion engine). The pilot will be Flt. Lt. D. D'A. A. Greig, D.F.C., A.F.C., R.A.F.

The present World's Record for speed was set up by Major De Bernardi, who flew a Macchi float seaplane (Fiat A.S.-3 engine) at the Lido, Venice, on March 30, 1928, over a three-kilometre course at an average speed of 318½ m.p.h.

A note on Flt. Lt. Greig's Service career appeared in The Aeroplane of April 25, 1928.

The Southern Command Manoeuvres.

The Southern Command Manœuvres began in the Salisbury Plain Area on Sept. 19. The R.A.F. Units co-operating in the Manœuvres are as follows :—

Westland.—One Flight of No. 16 (Army Co-operation) Squadron, Bristol Fighters; No. 3 (Fighter) Squadron, Sq. Ldr. E. D. Johnson, A.F.C., Gloster Gamecocks (new temporary equipment); one Mobile Workshop.

Eastland.—No. 16 (Army Co-operation) Squadron (less one Flight), Sq. Ldr. W. A. Coryton, M.V.O., D.F.C., Bristol Fighters; No. 11 (Bombing) Squadron, Sq. Ldr. P. H. Cummings, D.F.C., Hawker Horsleys.

Permanent Commissions for Specialisation.

The following officers are being gazetted to permanent commissions on the General Duties Branch as from Sept. 1, 1928, having undergone successfully a long course or the first year of the aeronautical engineering course :—

Flying Officers.—A. W. B. McDonald, G. D. Green, G. B. M. Rhind, R. R. Bennett, J. M. Cohu, A. C. Evans-Evans, H. M. S. Wright, G. J. Southam, W. A. Tattersall, H. M. G. Parker, A. E. Paish.

The number of vacancies offered for competition at the
amination to be held in March, 1929, is as follows :—
nautical engineering 13, Signals 6, Armament 1, Total 20.

"Drifting"

The Times of Sept. 14 states :—

One of the naval drifters such as are used to attend on the sea
fleets is to be lent to the Air Ministry for service with a coastal de
torpedo bombing flight at Turnhouse, Mid Lothian. The vessel se
is the *Cascade*, hitherto in reserve at South Queensferry, and for
attached to the minelaying destroyer *Telemachus* at Harwich.
Air Ministry are responsible for the expenditure incurred in p
ing her for service, and for any reconditioning charges on her r
Certain alterations to the *Cascade* are being done at Leith.
Admiralty have provided a crew to take her from Rosyth to Leith
no ship-keeping party, and it is the intention of the Air Mi
ultimately to man the vessel with a civilian crew.

The R.A.F. Unit formerly known as the Coast Def
Torpedo Bomber Flight has been redesignated No. 36 (Tor
Bomber) Squadron, and is stationed at Donibristle.
Unit at Turnhouse is No. 603 (City of Edinburgh) (Bomb
Squadron, Auxiliary Air Force.

Wing Commander W. V. Strugnell.

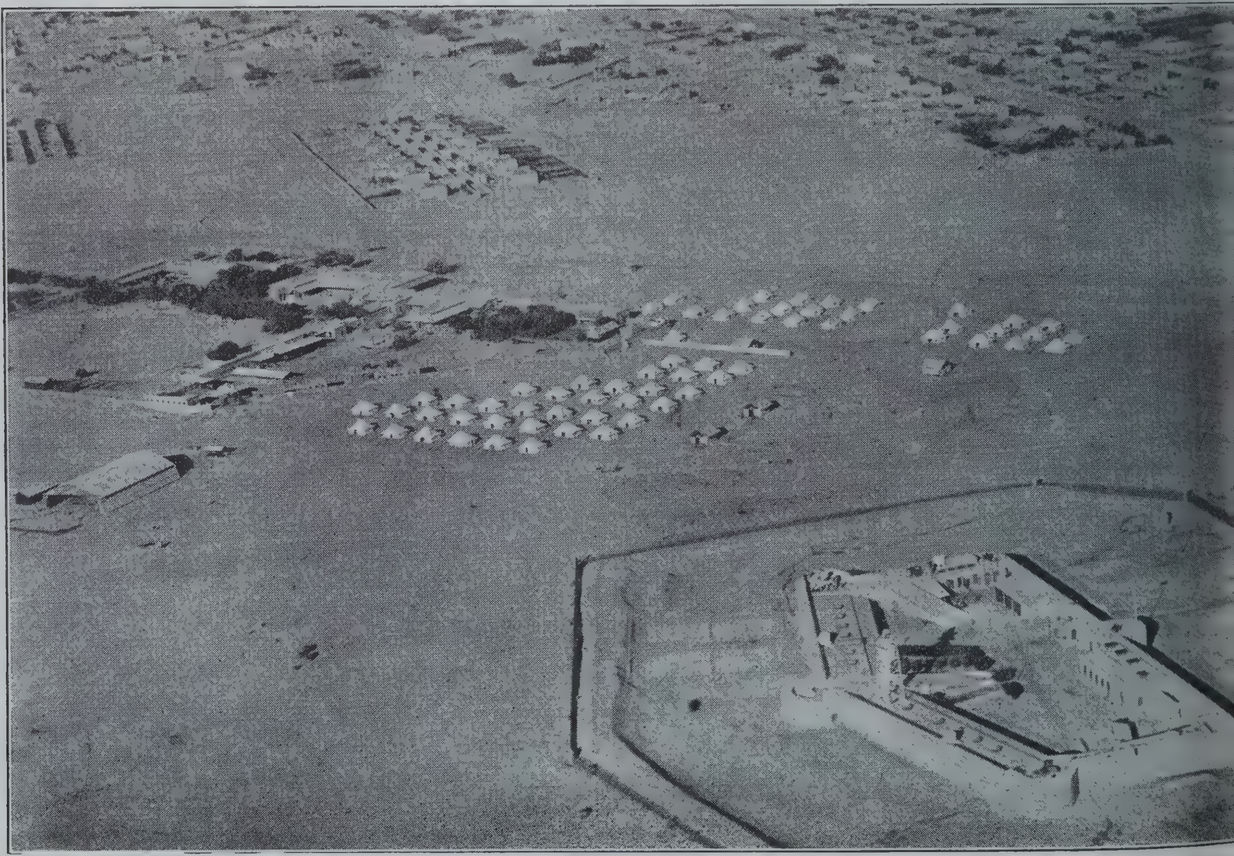
Wing Cdr. W. V. Strugnell, M.C., whose appointme
No. 9 (Bombing) Squadron, Manston, is dated Sept. 1,
born at South Stoneham in 1892 and was educated at M
Grammar School. He served in the Royal Engineers as
and Sapper from 1907 until 1912 when he was transferre
the R.F.C. with the rank of Sergeant. He was one o
first N.C.O.'s to be trained to fly by the R.F.C. and
Royal Aero Club Certificate No. 253 is dated July 24, 1912
marked Bristol biplane, Salisbury Plain.

He went to France with the R.F.C. in August, 1914, a
June, 1915, he was awarded a commission in the Hamp
Regt. and seconded to the R.F.C. with the grade of F
Officer. He was promoted to be Flight Commander and
porary Captain in February, 1916, and in June, 1916, he
awarded the Military Cross for distinguished service i
Field. After six months' home service he returne
France in December, 1916, and in July, 1917, he was awa
a Bar to the Military Cross.

The *London Gazette* of July 27, 1917, states :—

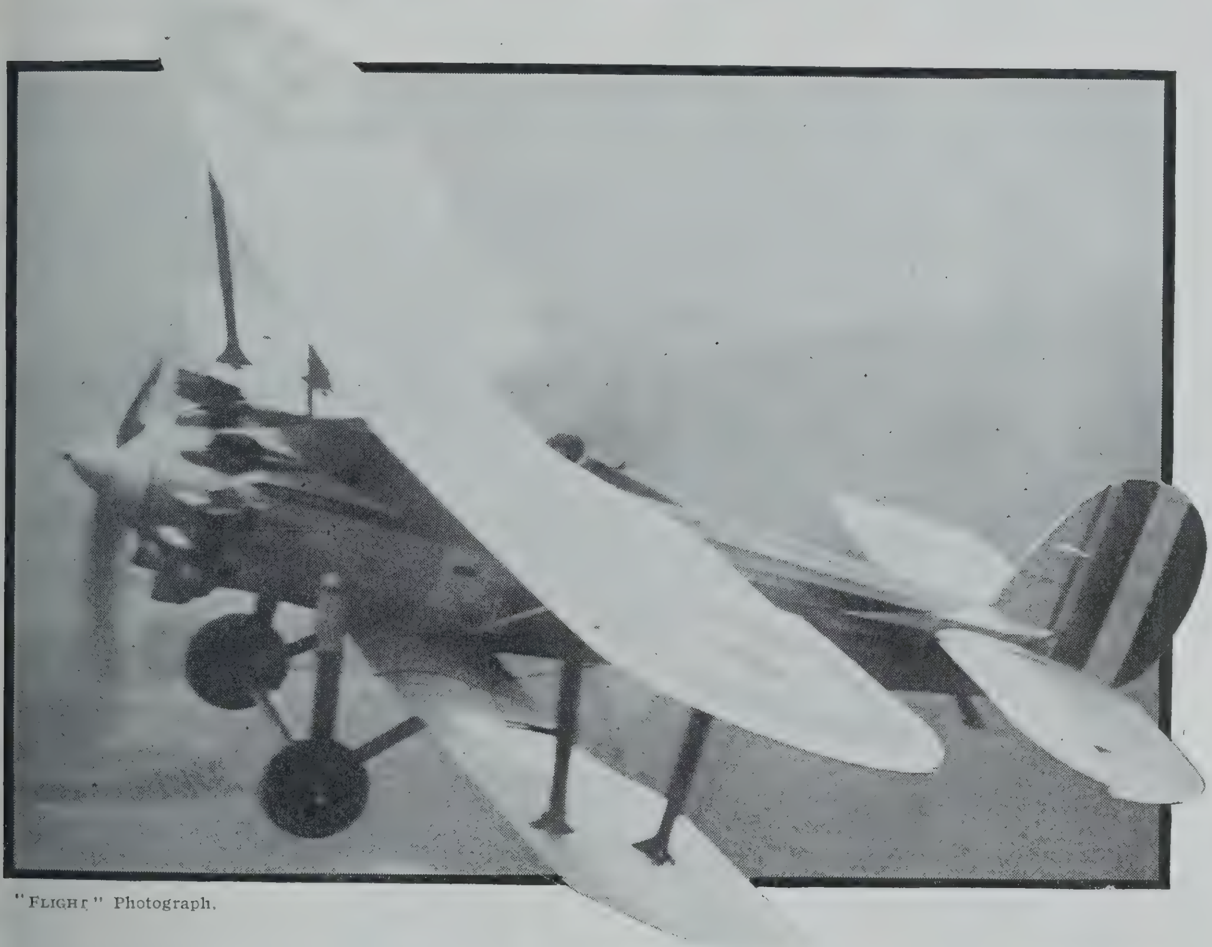
While leading on offensive patrol he attacked and brought do
hostile machine. Later in the same patrol he brought down a s
machine. In all he has accounted for five machines and a kite ba

He was promoted to be Squadron Commander and
porary Major in September, 1917, and in August, 1919, h



THE SUDAN.—No. 47 (Bombing) Squadron, R.A.F., camped outside the Fort at Khartum during the operations against the Lau Neurs in February, 1928.—(*R.A.F. Official photograph.*)

“Bristol”



“FLIGHT” Photograph.

Here are some of the Press comments regarding the “Bristol” Single-Seater Fighter shown at the 1928 Paris Aero Exhibition:

“THE AEROPLANE,” July 11th, 1928.

“The real *clou* of the Show, the thing which everybody who was anybody in aviation went to see, was the ‘Bristol’ Single-Seater Fighter . . . Though our old friends the Bristol Aeroplane Company from their earliest days . . . have been noted for the excellence of their workmanship, and though everyone will freely admit that Bristol workmanship is still unsurpassed by anyone else . . . .”

“FLIGHT,” July 5th, 1928.

“The Cameo of the Show, this was the expression used by a French engineer in reference to the ‘Bristol Single-Seater Fighter.”

“ENGINEER,” July 20th, 1928.

“After seeing everything in the show, the fighting machine exhibited by the Bristol Aeroplane Co., Ltd., with the panelling on one side removed to reveal the construction and equipment, was a revelation.”

“THE TIMES,” June 30th, 1928.

“ . . . A Single-Seater Fighter shown by the Bristol Aeroplane Company . . . . very considerably surpasses any other in the Show in performance, ingenuity of design, workmanship and equipment. . . .”

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signed his Army commission on appointment to a permanent commission in the R.A.F. with the rank of Squadron Leader. In 1921 he was posted to No. 1 F.T.S. Netheravon, and in September, 1922, he was appointed to the 'Iraq Aircraft Depôt, Hinaidi. In October, 1924, he was posted to the R.A.F. Depôt, Abukir, Egypt, where he remained until May, 1926. In September, 1926, he was appointed to H.Q., No. 21 Group, West Drayton.

Some Service Contemporaries.

The Felixstowe Foghorn : A newcomer to the ranks of R.A.F. Station magazines is *The Felixstowe Fog-Horn,* published by the R.A.F., Felixstowe, the first number of which appeared in August. *The Felixstowe Fog-Horn* is to be published quarterly, price sixpence. The first number has 40 pages and measures about 8½ in. × 6½ in. which makes it a handy size for a bookshelf. The contents include Station news, personnel notes and postings lists, illustrated sports pages, Felixstowe Aero Club notes, cartoons, poems and humorous articles and stories.

The Editors intend to enlarge and improve the paper with every issue. They have certainly dived-off well.

The Halton Magazine : The Summer, 1928, issue of *The Halton Magazine* lives up to its usual high standard for information and entertainment. In addition to the usual Station news features, the contributions in this issue include "Some Impressions of the Zeebrugge Raid, April 23, 1918," a description of the Aircraft and Engine Works of Sir W. G. Armstrong-Whitworth and Co., some "Reminiscences of the Great War," and a delightful article on "Malta," giving an outline of its history, a description of the country and an account of the activities of the R.A.F. stationed there. *The Halton Magazine* is more than a Station Magazine, it is practically a current history of one of the most interesting Units in the Service.

The Daedalus : The May, 1928, issue of *The Daedalus* is the third issue of the magazine of the Old Boys' Association, R.A.F., Halton. The membership of this Association is now over 2,000 and increases as each Entry passes out of Halton. The chief object of the magazine is the publication of the reports of the 58 Branches of the Association now in existence. There are also interesting articles and notes from the members in different parts of the World.

The Overseas Airman : The life of a monthly Service magazine is apt to be brief and the Editorial Staff of *The Overseas Airman* is to be congratulated on having survived three volumes and on producing, with a very good-looking new cover, the ninth number of the fourth volume. The September, 1928, issue is as full as ever of news and photographs of overseas Units, including excellent sports notes. The mildly libellous personal paragraphs have been reduced in numbers and if Units would react to the Editor's plea for more regular contributions *The Overseas Airman* would develop into a very useful and interesting paper.

The Planesman : The June, July and August issues of *The Planesman* show a steady improvement in the size and quality of this magazine, but one cannot help feeling that full use is not made of its opportunities. A "Journal for the Royal Air Force" ought to have at least one interesting and informative article each month. The arrangement of the paper could also be improved by a little variety in the size of the type used. Editorial comments, Service news, and Station scandal, are all printed in the same size type and in any sort of order. Editorial comment on the month's news, one or two articles on Service affairs, travel experiences, etc., and a better arrangement of Station news would improve *The Planesman* out of all recognition.—c. m. mca.

R.A.F. SPORTS AND PASTIMES.

The R.A.F. Rugby Union.

The following officials of the R.A.F. Rugby Union Committee have been appointed for the 1928-29 season :

Chairman, Grp. Capt. A. D. Warrington-Morris, C.M.G., O.B.E., Ordnance Committee, Royal Arsenal, Woolwich, S.E.18. Secretary, Flt. Lt. T. W. Elmhirst, A.F.C., Room 635, Air Ministry. Treasurer, Wing Cdr. W. C. Hicks, A.F.C., Halton Camp, Bucks. Captain, Flg. Off. G. R. Beamish, No. 100 (B) Sqdn., Bicester, Oxon. Vice-Captain, Flt. Lt. R. V. M. Odbert, R.A.F., Eastchurch. Additional member of the Committee, Sq. Ldr. J. C. Russell, D.S.O., Air Ministry. Representative of Units in the Northern Area, Wing Cdr. E. M. Murray, D.S.O., M.C., R.A.F., Cranwell. Representative of Units in the Southern Area, Flt. Lt. J. Lawson, R.A.F., Andover.

The following fixtures have been approved :—

Nov. 3.—Trial XV v. R.A.F. Cadet College at Cranwell.
Jan. 5, 1929.—R.A.F. v. Police at Newport.
Jan. 9.—R.A.F. v. Bristol at Bristol.
Jan. 16.—R.A.F. v. Cambridge University at Halton.
Jan. 24.—R.A.F. v. Leicester at Leicester.
Jan. 31.—R.A.F. v. Coventry at Coventry.
Feb. 6.—R.A.F. v. Guy's Hospital at Honor Oak Park.
Feb. 16.—R.A.F. v. Royal Navy at Twickenham.
Feb. 27.—R.A.F. v. Oxford University at Oxford.
Mar. 2.—R.A.F. v. Northampton at Northampton.
Mar. 7.—R.A.F. v. Bedford at Bedford.
Mar. 13.—R.A.F. v. Civil Service at Chiswick.
Mar. 16.—Inter-Unit Cup Final at Uxbridge.
Mar. 23.—R.A.F. v. Army at Twickenham.

PRETORIA—CAPE TOWN.

On Sept. 17 Colonel Sir Pierre van Ryneveld, O.C South African Air Force, accompanied by General Chief of the General Staff, flew non-stop from Pretor Cape Town, a distance of approximately 1,000 mile 7 hrs. 27 mins.

CAPE TOWN—LONDON.

Lieut. P. Murdoch, S.A.A.F., who left Cape Tow Aug. 14 on his return flight to London in an Avro (A.D.C. Cirrus engine), resumed his flight on Sept. 13, he left Pretoria for Bulawayo. It will be recalled th forced-landed at Blaauwbank when flying from Beaufort to Pretoria, and later proceeded to Pretoria, where machine was given a complete overhaul.

On Sept. 14 he flew from Bulawayo to Broken Hill.

AIR HISTORY.

An important contribution to the history of the F Services will be published this week under the title of *Story of a North Sea Air Station : Being some accou the early days of the Royal Flying Corps* (*Naval Wing*) *of the part played thereafter by the Air Station at Yarmouth and its opponents during the War* 1914-18.

The Author of the history, Mr. C. F. Snowden-Gamble R.A.F., has collected a mass of information from Britisl German official and unofficial sources and his book wi of exceptional interest to everyone concerned with avi and its application to war.

The book will be on sale at The Aeroplane Book De ment, Cannon House, Pilgrim Street, Ludgate Circus, towards the end of this week, price 21s. 6d. post free.

ORDER THIS BOOK TO-DA

Publication Day, Sept. 20, 1928.

THE STORY OF A NORT SEA AIR STATION :

Being some account of the early days of the Royal Flying Corps (Naval Wing) and of the part played thereafter by the Air Station at Great Yarmouth and its Opponents during the War, 1914-1918.

By

C. F. SNOWDEN GAMBLE.

(Illustrated.)

Price, post free, **21/6** (inland).
21/9 (abroad).

(A REVIEW will appear in "The Aeroplane" next week.)

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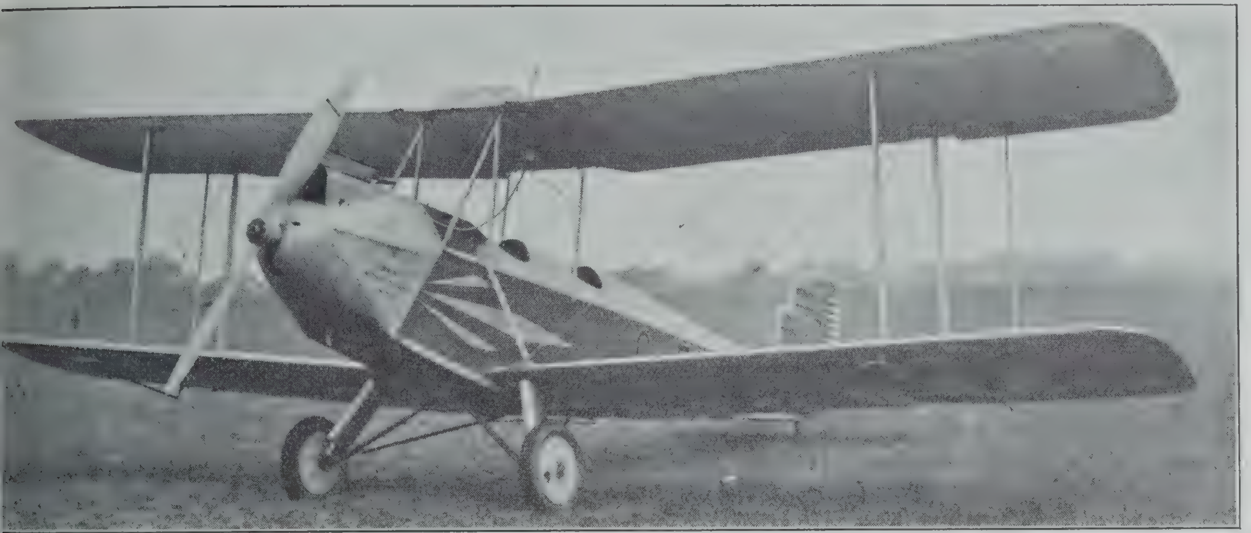

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THE ROYAL AERONAUTICAL SOCIETY.

The Far East Flight :—The Royal Aeronautical Society has sent a cable to Group Captain Cave-Browne-Cave on the completion of the remarkable cruise of the flying-boats under his command. This reads :—

> Council have followed with the deepest interest your highly successful cruise. On behalf of the R.Ae.S.I. they send their warmest congratulations to yourself and crews of the machines on termination of this historic cruise, and the great technical results achieved.—Sempill, President.

The Sir Charles Wakefield Gold Medal :—At the last meeting of the Council of the Royal Aeronautical Society the Sir Charles Wakefield Gold Medal, which is awarded annually to the designer of any invention or apparatus tending towards safety in flying, was unanimously awarded for 1928 to Mr. F. Handley Page, for his work in connection with the automatic slot.

The Society's Silver Medal :—The Silver Medal of the Society, which is awarded for some advance in aeronautical design, has been awarded for the year 1928 to Mr. B. N. Wallis for his work in connection with the design of airships.

R.38 Memorial Prize :—The R.38 Memorial Prize is offered annually for the best paper received by the Society on some subject of a technical nature in the science of aeronautics, preference being given to papers which relate to airships. As a result of the report of the referees the Council have awarded the prize for 1927 to Mr. H. Roxbee Cox for his paper on "The External Forces on an Airship Structure with Special Reference to the Requirements of Rigid Airships Design." The paper, which is a very lengthy and important one, will be published in a forthcoming issue of the Journal of the Society.

THE FRENCH AIR MANŒUVRES.

On Sept. 14-15 the French *Aéronautique Militaire* conducted a demonstration of air manœuvres in the vicinity of Paris. At the invitation of the French Government Air Vice-Marshal C. L. Lambe, C.B., C.M.G., D.S.O., A.O.C., Coastal Area, and Air Vice-Marshal Sir J. M. Steel, K.B.E., C.B., C.M.G., A.O.C., Wessex Bombing Area, observed the manœuvres on behalf of the Royal Air Force.

The manœuvres were under the direction of General Barès commanding the *2me Division Aérienne,* which division comes under the *Gouvernement Militaire de Paris.* The object of the manœuvres was to give the air and cavalry units opportunities of co-operating on a larger scale than that which the ordinary training allows.

Over 300 aircraft took part. These were drawn from the *11me Regiment d'Aviation,* Metz, *22me Regiment d'Aviation,* Chartres, *31me Regiment d'Aviation,* Tours, and the *34me Regiment d'Aviation,* Le Bourgêt.

The units were divided into two forces known as "East" and "West," the Eastern force, with headquarters at Villacoublay, being the advanced guard of an imaginary army which was assembling east of Paris to attack the Western Force. The area of the operations covered a wide area South-West of Paris, bounded by a rough triangle, the angles of which were Chartres, Limours, and Ivry-la-Bataille.

On Sept. 13 Le Bourgêt was evacuated. Aircraft of the *34me Regiment d'Aviation* flew to their various destinations, the fighting and reconnaissance aircraft to Villacoublay, the observation aircraft to Buc, and the bombing aircraft to Orly, followed by the ground personnel, and by 11.00 hrs. the entire military establishment at Le Bourgêt had disappeared.

At 08.00 hrs. on Sept. 14 the Eastern columns began their advance and during the forenoon were attacked by the bombing squadrons of the *11me* (*Metz*) *Regiment d'Aviation.*

At the end of the first engagement the umpires ruled that one of the invading sections had found its aim, while two others had been destroyed by the anti-aircraft guns of the defence or by fighters. At one moment four Western fighters crossed the Eastern front under cover of mist, and diving to 100 ft., passed over the point occupied by General Barès, the Director of Operations, where the R.A.F. observers were watching the manœuvres.

From forecasts which appeared in the French Press, the public were led to expect a scheme of operations on a very extensive scale which were designed to test the air defences of Paris. If this were the intention, it was not carried out, for only a small number of reconnaissance units were employed on Sept. 15 in the tactical exercises between Villacoublay and Chartres, in which the 1st and 3rd Cavalry Divisions were engaged. Exercises in formation flying, and in bombing, or firing at fixed targets, were performed from time to time, in the presence of the R.A.F. Mission, who expressed their appreciation.

The actual ground attack manœuvres were made on the parade ground at Fontainebleau, where white panels representing bodies of infantry and isolated silhouettes representing individuals or machine-gun posts were attacked with actual machine-gun fire and bombs filled with cement and red powder. The bombs made excellent play on the infantry gets, and assuming that the infantry were stationary, t would certainly have been wiped out. The silhouettes w riddled with holes testifying to the accuracy of the firing the single-seat fighters.

As with the R.A.F. air manœuvres it was found that single-engined bombers were as fast as the single-s fighters.

At the conclusion of the exercises about 100 aircraft sembled at Villacoublay and Buc, and flew over Paris, ke ing excellent formation. M. Painlevé, the Minister of W went up in the leading machine.

THE BERLIN AERO SHOW.

According to *Flugsport* the preparations for the Berlin A Show—which is to open early next month—are progress very satisfactorily, and all details of the arrangements stands and the like are now definitely settled.

Eighteen nations will be represented. Approximately aeroplanes and the majority of the World's best aero-engi will be on show in addition to a multitude of accessories other exhibits.

The German Aircraft Industry as a whole is hard at w putting the finishing touches on its show machines and gines. In the centre of the hall reserved for German exhi will be shown large Rohrbach and Dornier flying-boats, w around them the whole gamut of German aeroplanes, fr the little Klemm up to the largest commercial machines.

France will be represented by Farman, Breguet and Ble passenger carriers.

Italy by Caproni, and Savoia aircraft and Isotta-Frasch engines.

British exhibits, mostly engines, will occupy 700 sq. of floor space. Which means a space about 60 ft. × 110 f the size of a small parish hall, or a decent-sized dance-flo

The Czechoslavakian section includes engines by the Wal and Skoda firms.

Holland is to fill 300 sq. m.

Austria, Switzerland, Scandinavia, Greece, Spain and United States have each a section of their own.

A special hall is allocated to civil aircraft operations apart from aircraft and *materiel* generally. A stand occup by the Luft Hansa A.G. will be the largest in this secti

MISPLACED ZEAL.

At 08.40 hrs. on Sept. 13 *Lieut. de Vaisseau* Demougeot catapulted from the French liner *Ile de France* about miles W. of the Scilly Isles with mails for Havre and Pa

At 09.20 hrs. he was forced to alight with magneto troul The machine, a Schreck amphibian (Gnôme-Rhône Jup engine), had a crew of three on board and a mail load 3,000 letters. The wireless equipment was not suitable use when on the water, and as the sea was too rough the machine to attempt take-off again, it was compelled drift until sighted and picked up.

At 19.30 hrs. the machine was sighted by the Brixh trawler *Children's Friend* and the crew and mails were tal off. An attempt was made to tow the machine but it br away in the night and was abandoned.

The crew was landed at Newlyn, near Penzance, on morning of the following day and the mails were deposi in the Penzance Post Office. The second pilot, M. Domerg was detained in hospital with a severe chill.

Before being rescued the crew sighted two steamers wh failed to see them and the machine drifted some 40-50 m from their point of alighting. The machine was ultimat found by a vessel belonging to a French search party and towed into Brest.

One is told by a passenger in the *Ile de France* that machine had had trouble on the West-bound trip, and t after being brought on board in New York harbour the eng was stripped down and re-assembled on the ship by the s plane crew.

The work was still proceeding on the East-bound voya And consequently the machine was catapulted off, comp with crew and mails, without ever having made a test flig

This sort of thing is very French. It may be very sho and, after a fashion, very brave. But as a method of dem strating the value and reliability of air transport it is mer stupid.

BRISTOLS IN PARIS.

Owing primarily to the immense popularity of the Jup engine and the widespread interest which is taken in it everybody concerned with aviation all over the World, presumably because of the interest caused by the all-s Bristol single-seat fighter at the Paris Show, the Bri Aeroplane Co. Ltd. have opened an office at 45, Boulev Gouvion St. Cyr, Paris. Capt. K. J. G. Bartlett is charge and will be pleased to impart full information ab all Bristol activities to anybody who may inquire of him

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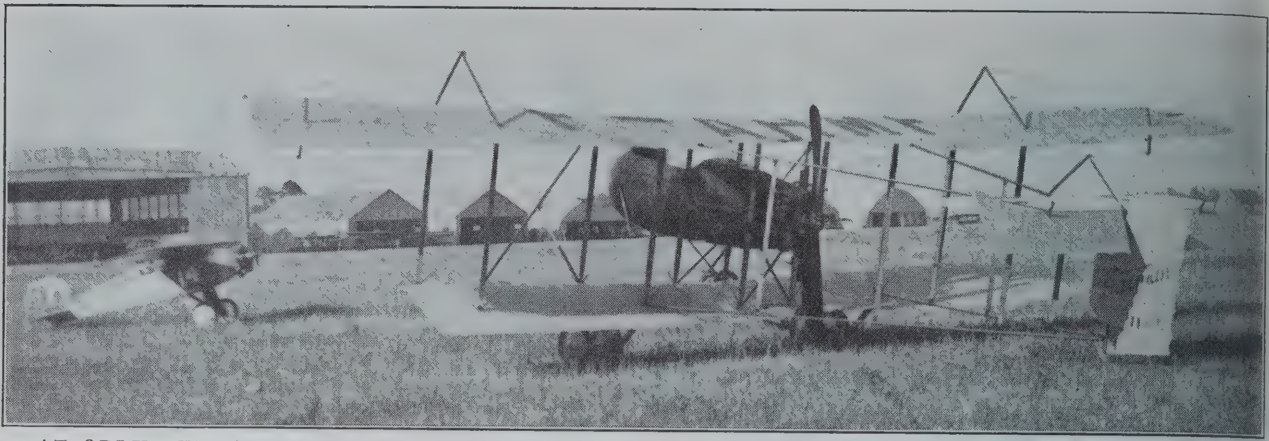
MORE ABOUT THE ORLY MEETING.



AT ORLY.—The Albert monoplane, piloted by its owner, Mr. Fisbach, passing a relic of bygone days, a "Horace" Farman, when going out for the height test.—(*"Aeroplane" photograph.*)

[*These impressions of a Canadian novice visiting Orly are offered in response to the concluding suggestion in last week's article on the Orly meet.*]

The reliability test, which concludes the light aeroplane meeting of the *Association Française Aérienne* at Orly, is now under way, and until it ends the winner will be undecided. Up to date, however, it looks like a win for the German Klemm-Salmson monoplane piloted by the amiable and very capable Herr Robert Lusser. Mr. Broad is fairly safe for second place with the Gipsy-Moth, incidentally the only Moth in the contest, with Mr. Percival and Lady Heath following closely on Avian-Cirrus III's.

Massot and Delmotte on Caudrons, monoplane and biplane respectively, with 60 h.p. Salmson five-cylinder engines, and Finat on a Caudron with that charming little miniature, the 40 h.p. Salmson nine-cylinder, will probably lead the French contingent which follows. Lemerre, on the Guerchais cabin monoplane, is doing well, but Fisbach on the Albert-Salmson 40 retired on the first lap.

The fuel consumption in Wednesday's event has not been obtained for the last few machines, so it is mere guess work to anticipate official utterances. Everything hangs on that day's work—of which more later. Indeed, the top places may also be insecure for the same reason, but when officials will not talk, and angels fear to tread, somebody must rush in.

There is no such thing as a perfect system of scoring, an this fact is not really ignored in the following remarks. Bu Orly aerodrome is splendidly isolated, and the day was ho Local misdirection and a five-kilometre walk with rainco and camera joined to make admirable sauce for jaundice criticism.

It is assumed that the real object of a meeting like this to discover the best light aeroplane, but fallible morta devise the rules, and others of that ilk administer then When it is all over the geniuses who invented the rul will quote the results to prove that certain machines ar unsound, while talented folk who invent machines will us the same authority to show that all the rules are unsoun But much is learned thereby, and it was even so at Orly.

Monday morning was spent in "tests of quality." Th list of points was roughly as follows: extra cockpit (pa senger), 15; for each parachute, 5 (the Irving not bein credited as such, as mentioned last week); fire protectio devices, such as extinguisher, fireproof bulkheads, jettiso valves, wing tanks, etc., 20; rigid wing covering (metal wood), 15; folding ability, 15; starting device, 15; dual con trol, 10; visibility and comfort, 5. Take-off and climb wer naturally matters of demonstration and the awards varie with performance, which did not appear to be the case i the other matters. It is difficult to see why.

The examination was conducted by M. Suffrin-Hebert an

AT ORLY.—The British contingent. From left to right, standing: Mr. Perceval, Mr. Tapper, Lady Heath, Mr. Bryant, Capt. Cyril Turner, Mr. Broad and Mrs. Turner. Sitting: Mr. F. D. Little, Mr. Neville Stack and Flt. Lt. Comper.—(*"Aeroplane" photograph.*)

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AT ORLY.—Mr. Hubert Broad with Mrs. Turner as passenger in the D.H. Gipsy-Moth (Gipsy engine) in the Take-off Contest.—(*" Aeroplane " photograph.*)

Capt. Joublin, representing the *Service Technique de l'Aéronautique,* M. Réné Moineau and M. Charles Dollfus. The awards for " comfort " were made on a material basis and had nothing to do with peace of mind. It was a little hard on the Klemm machines that they got no credit for a considerable percentage of ply-wood surface on the wings. Only the Albert and Guerchais, complete ply-wood jobs, received the 15 points.

The wing-folding, or other width-reducing exercises, were allowed thirty minutes. This included passing through the two " needle's eyes " and reassembling, but not the five-minute flight which had to follow.

To comply with this ruling qualified all on an equal basis, irrespective of whether the time margin was large or small. Presumably it was intended to reward the machines which can be stored for the night in a small shed. Very reasonable.

But while Flt. Lt. Comper's C.I.A.4 might be so disposed, especially if not complicated by racing fairings and special fittings; and although the Klemm machines can be stowed in about a quarter of an hour by the four men allowed to assist; this is not the case with the Albert, which passed the test after removing twelve wings-bolts, disconnecting all control and fuel connections and reassembling amid considerable splashing of petrol. None of these are in the same street as the Avians and Moth, which got no credit for doing the job in something under two minutes each.

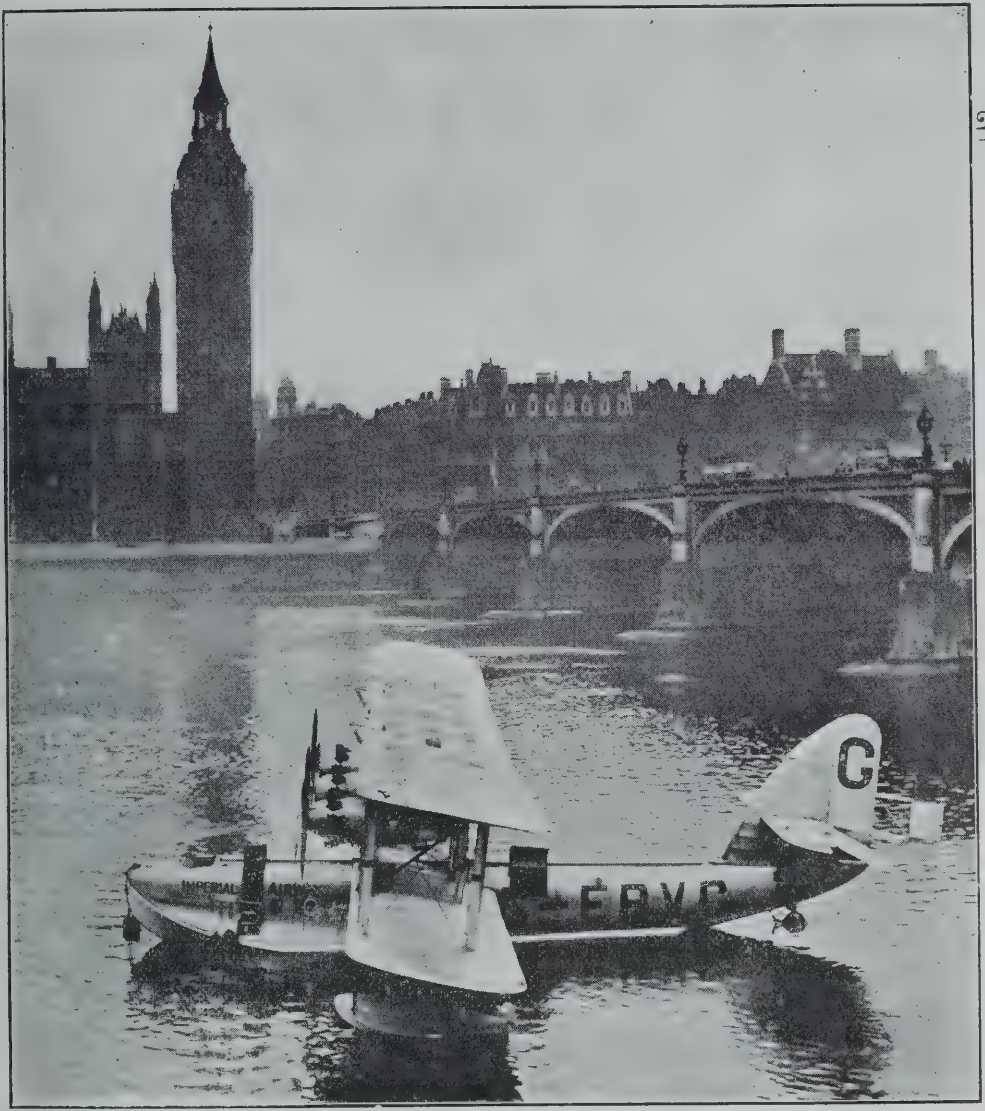
The starting tests added mightily to the gaiety of nations. Ten points were solemnly promised to the pilot who could start his engine without help, from the cold state, with
fifteen minutes, three times in succession, with a minut
run each time. He, or she, might prime the engine
hand-turning the propeller, but was not allowed to give
the starting swing in this way. The detailed ruling was
meticulous enough to exclude all humour; especially as
judges had failed to stipulate that the " self-starter " e
ployed should present some advantage over hand-starting
safety; certainty, ease or convenience.

Consequently, when the Salmson motors on the Klem
and some of the Caudrons had been started by the pil
from their seats with practicable cranks other devices
peared. For fear of misunderstanding, one hesitates
mention cranks in connection with these, but, briefly, th
appeared to be attempts to apply manual traction to
propeller blade without pulling it by hand. It is hoped th
this explanation makes everything clear.

The culminating effort was a masterpiece in rope a
elastic, and lost nothing in humour, as demonstrated by
voluble French owner upon an Avian. It involved pe
driven into the ground, a leather night-cap for one propell
tip, ropes and quick-release devices, and considerable m
cular contortion at the end of a stout rubber cord by
aviator, or aviatrix, *" seul, sans aide."* (Vide Réglemen
Art. 18, para. F.)

That inspired inventor, Mr. Heath Robinson, has, it w
felt, been at last eclipsed as a deviser of apparatus for
accomplishment of nothing with awe-inspiring ingenui
The indignant Cirrus at last deigned to start, but the min-

AT ORLY.—Mr. Perceval on the Avro Avian (A.D.C. Cirrus III engine) in the Take-off Contest.—(*" Aeroplane " photograp*



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A repeat order has been received from Imperial Airways, Ltd., for a third " Calcutta " all-metal flying boat.

SHORT BROS. (ROCHESTER & BEDFORD) LTD., ROCHESTER

AT ORLY.—M. Magnard flying the little Albert monoplane (40 h.p. Salmson engine) in an exhibition flight. (*"Aeroplane" photograph.*)

ture rodeo preceding each attempt had used up the time limit with plenty to spare.

The dual control tests were passed easily by all the two-seaters. Climbing tests eliminated the Klemm with the Daimler engine, which failed to get to 1,500 metres with a sulky engine.

Early on Monday morning Mr. Stack's Avian developed a leak in the tank, and the new one got lost in transit somewhere in Paris. Lady Heath offered the loan of hers until G-AAAT passed the preliminary tests, the French competitors consenting, but at last it was decided by the pilot that it would be impracticable to compete. His disappointment was shared by all, particularly as the Stack-Avian combination was looked to as one of the few possible chances against the formidable partnership of Broad and a Gipsy-Moth. That was before the efficiency-test of Wednesday—of which, again, more later.

Broad won the climbing test handily in 8 mins. 50 secs., the next being Percival in his Avian with 10 mins. The immensely attractive little Albert monoplane stood third and the Klemm fourth. Incidentally the Albert was flown by its owner, M. Pierre Fisbach, who is 18 years old, and took off his tricky little mount for the first time on Sunday after only 20 hours solo.

The meeting lost a lot of interest by the number of withdrawals. Eleven entries: nine French, one German and one Englishman, Lieut. Bentley, failed to appear. Apart from the interest of seeing a Moth-Cirrus III pitted against the Gipsy one would also have liked to observe the Wright Gale, Walter, Genet, Ruby and A.B.C. Scorpion engines in action. Good light engines were much too scarce at the meeting. It is also a pity that the Pander machines from Rotterdam did not take part, as good things have been heard about them.

The Salmson engines were represented by three 40 h.p. nine-cylinder plants, the most charming toys in the world and still high in the running at last hearing. But why load up a 40 h.p. engine with cylinders and attendant complica-

AT ORLY.—M. Magnard and M. Fisbach, pilots of the Albert monoplane. M. Fisbach is the owner of the machine.—(*"Aeroplane" photograph.*)

AT ORLY.—M. Louis Magnard on the Albert monoplane (40 h.p. Salmson engine) taking-off in the Take-off Contest.—(*"Aeroplane" photograph.*)

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tions until it has nearly as many parts as the Jupiter, a dozen times its size.

The Anzani has been well known since Bleriot flew the Channel, but the years have brought it little in wisdom or stature.

Incidentally, the 40 h.p. Salmson won the take-off for Finat on his Caudron. Ninety-one metres with 209 kilos. up is a good effort. Massot was second with his Caudron-Salmson 60. Broad (Gipsy-Moth), Lusser (Klemm-Salmson), Lady Heath (Cirrus III-Avian), and Fisbach (Salmson-Albert) followed in order.

Ten machines stood ready for the *"épreuve de rendement"* on Wednesday and were duly weighed in with ceremony and doubtful accuracy. The course was eight laps, Orly—Buc and back; about 300 kilometres all told.

After Vanlaere took off at 11.13 the air rapidly became untidy with competitors lapping at intervals of 16 to 21 minutes, according to the machine, and whether the pilot got lost or not. To ambitious observers who attempted to keep a complete time-chart and lunch at the same time it was a period full of interest and high endeavour.

In this connection grateful personal acknowledgments are tendered to Capt. Cyril Turner. There were few on the field whom he did not help in one or other of a hundred ways during the meet, but it was in the rôle of human slide-rule that he made the disastrous discovery. It is almost a separate story.

The points to be gained in this particular event were calculated on the formula

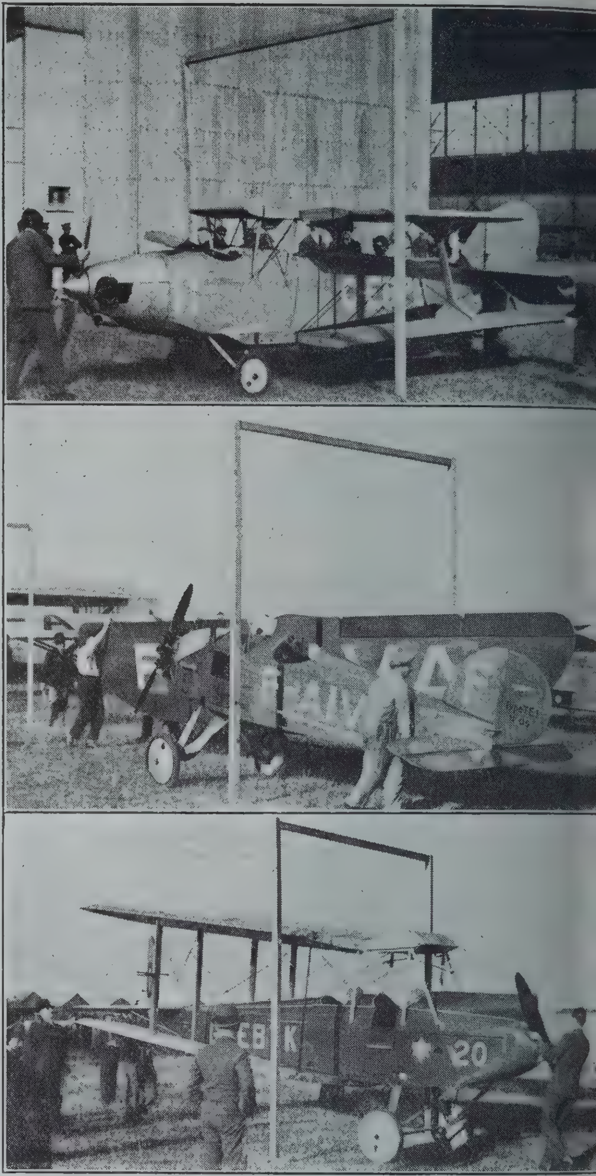
$$\frac{\text{Useful load in kilogs.} \times \text{Speed in k.p.h.}}{\text{Consumption in kilogs. (fuel and oil).}}$$

The temptation to guess the consumption and calculate the chances of Mr. Broad and Lady Heath, lapping like clockwork in about 16 and 15 minutes respectively, cornering faultlessly, was too great. Capt. Turner came in time to prevent serious consequences from prolonged revving at critical speed by the writer's bewildered faculties. In no time he discovered the disquieting fact that a few pounds extra in useful load made a difference of about four times as many points in the final result, ignoring, of course, the slight effect on speed and consumption within reasonable limits.

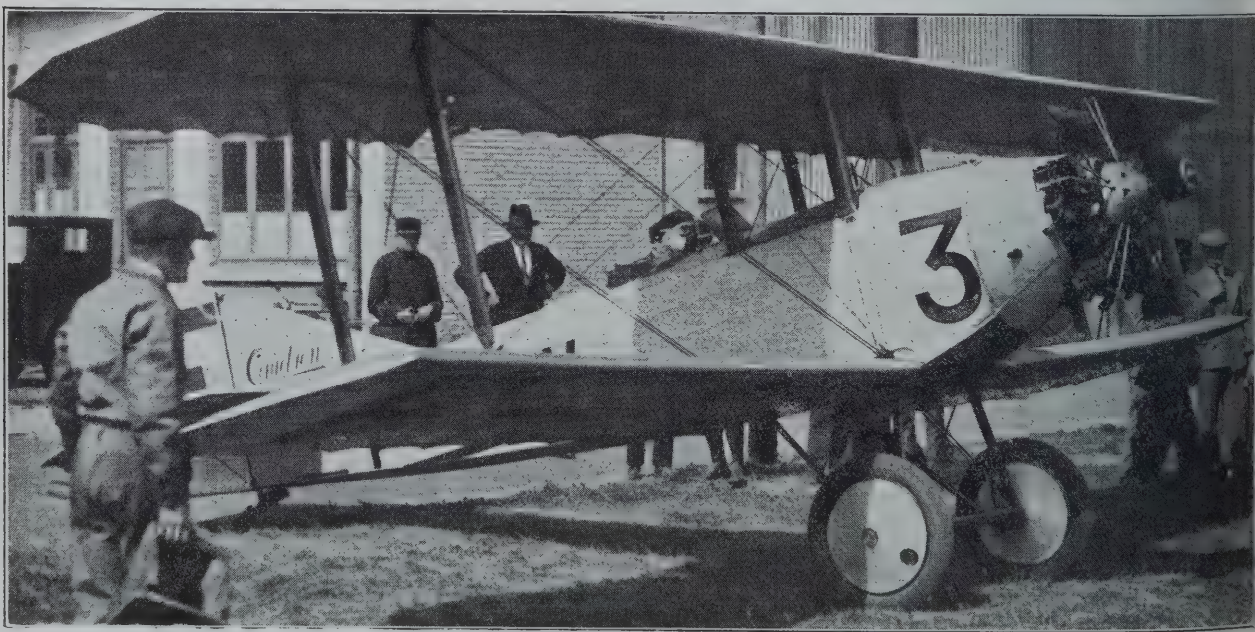
Lady Heath's slightly greater speed and load would probably be offset by higher consumption, leaving the result about the same as between Avian and Moth, but the important thing was the serenely buzzing Klemm-Salmson, lapping steadily with 246 kilogs. It at once became evident that he would secure enough points to render the previous two days, with their laborious accumulation of 15 points here and 5 points there, waste of time so far as the final result was concerned.

Further figuring showed that a machine which carried no passenger, had no protection against fire or somersaults, could not fold its wings and possessed neither visibility, parachute nor comfort, was assured of first place if it provided locker space for useful load.

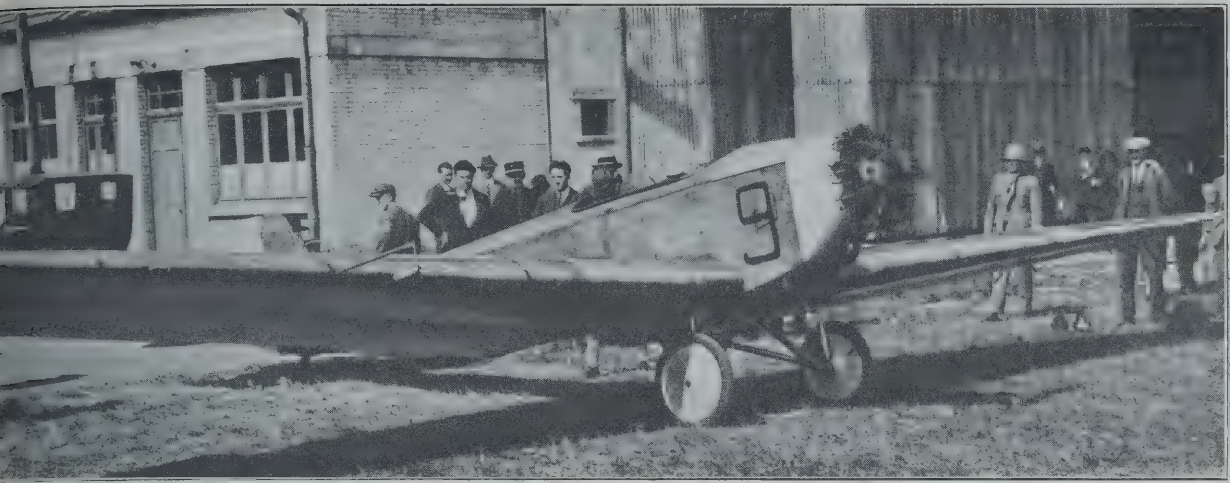
Besides the airworthiness ruling, the locker-space require-



AT ORLY.—From top to bottom: The C.L.A.4, th Albert monoplane and the D.H. Gipsy-Moth goin through the width-reducing exercises.
(*"Aeroplane" photographs.*)



AT ORLY.—The Caudron biplane, piloted by M. Delmotte, starting out on the fuel consumption test over the Orly—Buc—Orly circuit.—(*"Aeroplane" photograph.*)



AT ORLY.—The Klemm monoplane (40 h.p. Salmson engine), piloted by Herr Lusser, starting on the consumption test in which he scored 1,271 points.—(*" Aeroplane " photograph.*)

was the limiting factor imposed by the officials, who evidently realised something, but not all, of the above. had provided that in order to carry " useful load " had to be a place to put it; in other words, about 1. ft. for each 30 lbs., properly fitted with doors and nings.

mediately there arose the query: where is the locker- in the Klemm? Herr Lusser was humming cheerfully l the course like clock-work with nearly 500 lbs. of ful " load, and as the pilot and passenger allowance nly 300 lbs. it implied a locker space of over 10 cu. ft.! th the thoroughness of his race he had studied the ıla, so perhaps he had locker spaces in his cantilever or secret cupboards built in the thickness of his three- Someone had heard that his hypothetical passenger ned 140 kilos., in which case a readjustment will be in , as the rules make no allowance for passengers quite ell fed, but insist on exactly 75 kilogs. of humanity or Otherwise the Moth and Avians could probably have ed away with loads to the airworthiness limit and left eld standing.

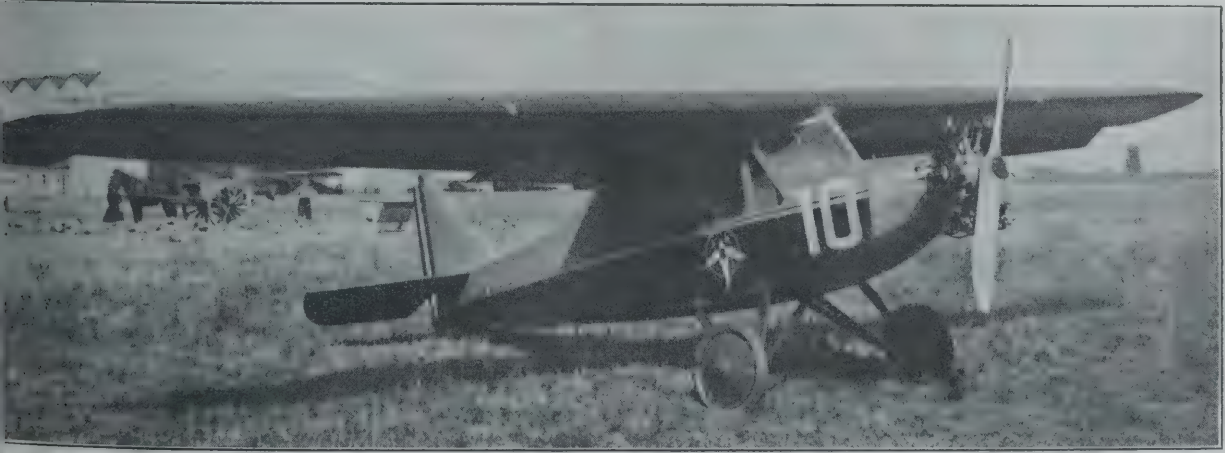
any case Herr Lusser carried 246 kilogs. at 106 k.p.h., a total consumption of 25.8 k. of fuel and oil. This, by strictly unofficial calculation gives him about 1,010 s. On the same basis Capt. Broad and Lady Heath are in the 800's. It looks as if more proportionate results l have been gained by letting in the decimal point one digit sooner if the " tests of quality " are to anything.

ures were not obtained on later arrivals. Percival ed to be doing well, also Finat. Vanlaere, on his ni-Caudron, was the only starter who failed to complete ourse.

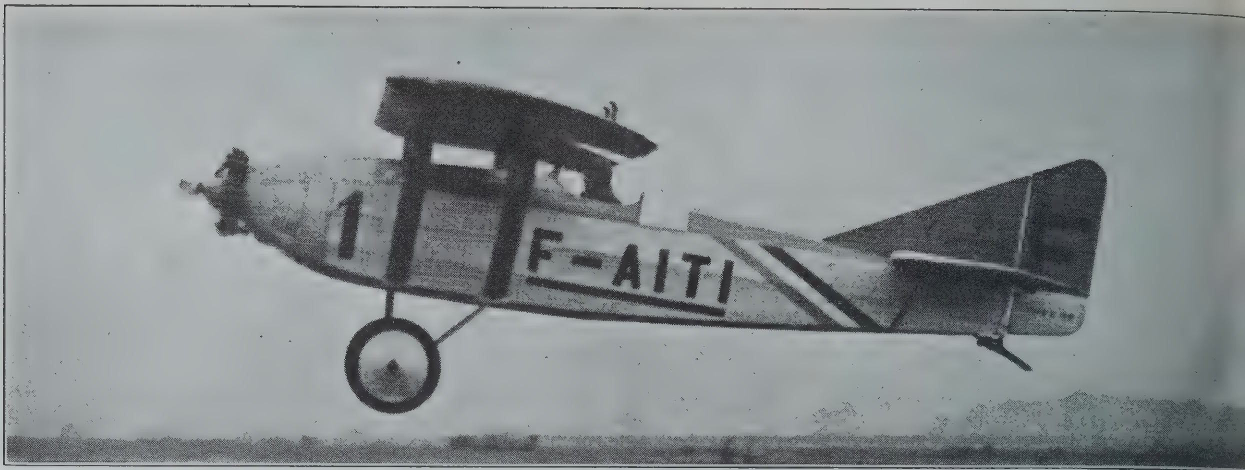
the whole it was an intensely interesting half-week, l with spasms of intense annoyance and helpless ter. The Press arrangements will not be commented ut the patience of the officials was generally pheno- l. There was not the air of enthusiasm one has learned distance) to associate with English meetings and has at one Canadian gathering at least. Events moved y at times and the organisation seemed somewhat ntary. The aerobatics of Atcherley on Monday and Stack on Wednesday were welcome diversions, as also was Magnard's exhibition on the Albert.

The relations of all contestants were of the very best, and one found the German pilots most excellent company.

AT ORLY.—The German contingent, Herr Aichele and Herr Lusser, in front of the Klemm monoplane (40 h.p. Salmson engine).—(*" Aeroplane " photograph.*)



AT ORLY.—The Guerchais two-seat enclosed cabin monoplane (Anzani engine), which, at the time of writing, was one of the few French machines left in the contest.—(*" Aeroplane " photograph.*)



AT ORLY.—M. Finat on a Caudron monoplane (Salmson engine, the first to get off in the Take-off Contest, well away after "unsticking" in 29 ft. 3 ins.—(*"Aeroplane" photograph.*)

Herr Lusser had, it seems, good reasons for his beaming benevolence, but Herr Aichele was cheery for no obvious reason, and in spite of a dud engine.

One's special, private award of one million points goes to Flt. Lt. Comper for abiding good humour in the face of the most crushing ill-luck. With generous French help and the stout efforts of his Bristol mechanic he repaired his undercarriage after Sunday's forced landing. He completed his folding test on Monday, only to be forced down after a few seconds of the qualifying five-minute flight. Examination revealed a fly in the carburettor jet! The fly was long since dead, of course, but deserved "something lingering and humorous with boiling oil in it."

A tyre gave way just before the start for the altitude test, but at last Comper was seen mounting merrily and appeared—as he afterwards confessed—to have come to the end of his troubles. Two hours later anxiety began to be felt, but it was not until next morning that the news of his third forced landing came through. The oil pipe had broken at 3,000 ft. and, being intent on air-speed and climb, the pilot had failed to notice it until his engine was effectually *hors de combat*. At no time did his machine have a chance to show what it could do, probably through entering the contest with too little preparation after a season's hard work.

Mr. Stack also acquires merit for his attitude as the victim of a futile matter. The game is certainly excellent training in self-control.

And so back to Paris in Capt. Turner's patient car, a vehicle which, even so, is no more patient than its driver, who only voiced a mild suggestion at the last minute. It seems that the pilot's seat has a folding back which does not make close connection with the very low-set cushion. Long-legged and fidgetty passengers in the back apparently make a regular practice of wiping their boots on that portion of Capt. Turner most accessible in the circumstances. He is assured, with renewed apologies, that it was quite unintentional.—F. D. B.

POINTS AWARDED.

The following shows the points awarded for the climb
to 1,500 m. (4,920 m.) :—D.H. Gipsy-Moth (20)—8 mins
secs.—128 pts., Avro Avian (18)—10 mins.—120 pts., Al
(14)—11 mins. 30 secs.—112 pts., Klemm (9)—13 mins
secs.—100 pts., Avro Avian (25)—15 mins.—90 pts., Cau
(3)—16 mins. 30 secs.—82 pts., Guerchais (10)—19 mins
secs.—64 pts., Caudron (4)—21 mins. 30 secs.—52
Caudron (1)—29 mins. 30 secs.—2 pts.

The following shows the points awarded in the tak
tests :—Caudron (1)—91 m. (29 ft. 9 ins.)—40 pts., Cau
(3)—104 m. (34 ft. 2 ins.)—37 pts., D.H. Gipsy-Moth (20)—
m. (34 ft. 7 ins.)—36 pts., Klemm (9)—112.15 m. (36 ft
ins.)—34 pts., Avro Avian (25)—115 m. (37 ft. 7 ins.)
pts., Albert (14)—116.5 m. (38 ft. 2½ ins.)—33 pts., Cau
(4)—137.5 m. (45 ft. 2 ins.)—28 pts., Avro Avian (18)—
m. (45 ft. 9 ins.)—28 pts.

The results of the petrol consumption tests over the
mile course (8 laps Orly—Buc-and-back) were as follow
Klemm (Lusser) 1,271 pts., D.H. Gipsy-Moth (Broad)
pts., Avro Avian (Perceval) 1,136 pts., Avro Avian (
Heath) 1,100 pts., Albert (Fisbach) 883 pts.

THE FIRST BRITISH HEAVIER-THAN-A FLIGHT.

With a view to establishing who made the first fligh
a heavier-than-air machine in the British Isles, the R
Aero Club has set up a special committee, of which
Gorell has consented to be the chairman, to investi
claims to early flights. In order to assist the committe
its investigations, full particulars of flights made not
than the year 1909 should be sent to the Secretary, Royal

BERLIN—TOKIO.

On Sept. 15 Herren Eichler and von Winterfeld left
Tempelhofer-Feld, Berlin, in a Klemm light monop
(35 h.p. Mercedes engine) in an attempt to fly from B
to Tokyo. They landed at Konigsberg later the same da

AT ORLY.—M. Massot on a Caudron monoplane (Salmson engine) in the Take-off Contest.—(*"Aeroplane" photograp*

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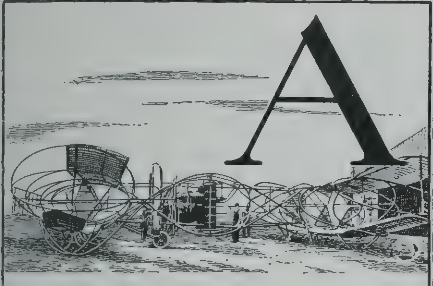

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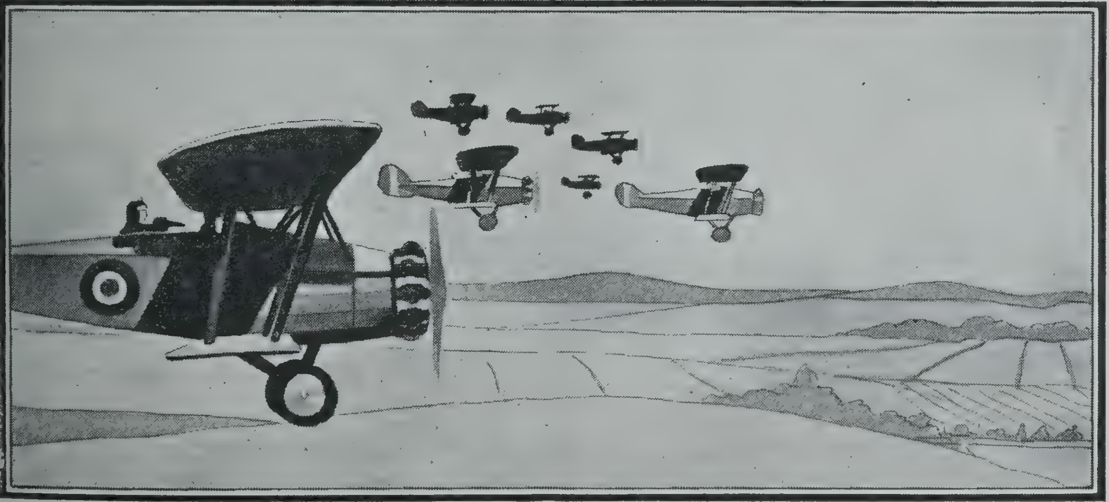

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THE FLYING CLUBS.

The London Aeroplane Club.

[Sec. Harold E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending Sept. 16.

Flying Time 66 hr. 20 min. *Instruction* 43 hr. 35 min. *Soloists* 22 hr. 45 min. *Instruction.—With Mr. V. H. Baker*—Messrs. H. W. Marlow, A. C. Thomas, G. R. S. Charles, G. E. Clair, A. O. Wigzell, J. B. Chalmers, E. Davis, E. Blythe, C. J. Pool, J. W. Harrison, A. Courtauld, G. F. Roberts, J. W. Briscoe, B. Carey, A. J. Richardson, C. Campbell, B. S. Whidborne, A. F. Burns, C. H. Bergel, Dr. Cook, Lord Carlow, Miss C. Johnson, Miss James, Miss Wilson, Mrs. B. Thatcher, Miss M. Hicks, Lieut.-Col. A. J. Farfan. *With Mr. F. R. Matthews*—Messrs. A. O. Wigzell, J. A. Crane, E. V. Puddy, J. F. Wood, E. Davis, C. J. Pool, G. H. Mackrow, G. F. Roberts, J. W. Briscoe, G. E. Clair, B. Carey, A. J. Richardson, H. W. Marlow, J. W. Harrison, F. Clarkson, G. R. S. Charles, A. Courtauld, L. R. Gaywood, L. D. Trappitt, H. Sutton, Mrs. Cook, Miss A. Johnson, Miss Fletcher, Lieut.-Col. A. J. Farfan, Miss Wilson, Miss James. *Soloists.*—Messrs. J. W. P. Chalmers, V. H. Doree, A. D. Blumlein, G. H. Craig, R. Ward, T. Elder Hearn, W. Roche-Kelly, H. C. Bergel, B. O. Davis, A. F. Burns, W. L. M. O'Connor, E. R. Andrews, D. P. H. Esler, W. Hart, H. Sutton, E. E. Stammers, C. W. Bonniksen, P. W. Hoare, Will Hay. *First Solo Flight made by* Messrs. G. R. S. Charles, G. E. Clair, H. C. Bergel.

During the week the following members successfully completed the tests for their Aviators' Certificates:—Messrs. C. W. Bonniksen, A. F. Burns, A. D. Blumlein, H. C. Bergel, J. W. P. Chalmers, B. O. Davis, T. Elder Hearne.

Replacement of G-EBYD.—It is hoped during this week to take delivery of a new D.H. Moth (Cirrus Mark II) to replace G-EBYD, which was crashed on Aug. 3 last.

The Newcastle-upon-Tyne Aero Club.

[Sec.: **J. T. Dodds, Cramlington Aerodrome, Northumberland.**]

Report for week ending Sept. 16.

Flying Time 33 hr. 20 min. *Instruction* 6 hr. 50 min. *"A" Pilots* 16 hr. 15 min. *Soloists* 8 hr. 20 min. *Passengers* 1 hr. 35 min. *Tests* 20 min. *Instruction.—With Mr. J. D. Parkinson*—Miss Slade, Miss Yendall, Messrs. Hall, Hayton, King, Tomkins, Stobie, Sadler, McLean, Wardill. *"A" Pilots.*—Mrs. Heslop, Miss Leathart, Messrs. Leech, De Pledge, Wardill, Runciman, Irving, Stobie, Turnbull, R. N. Thompson, Wilson, Percy, Heppell, C. Thompson, Phillips, H. Ellis, Dr. Dixon. *Soloists.*—Miss Slade, Mr. Sadler.

An enjoyable evening was spent last Friday when a dinner was given to Mr. Parkinson on the occasion of his departure to Canada. Sir Joseph Reed was in the chair and made a presentation. A number of Club members endorsed Sir Joseph Reed's remarks as to the good work Mr. Parkinson has done for the Club, and we all wish him every success in his new surroundings.

We also congratulate "Parky" who on his last day as Instructor here succeeded in sending off Miss Slade and Mr. Sadler on height tests for "A" Licences. These two members did exceedingly well and we are pleased to place on Club records two more pilots. A forced landing competition was held yesterday and a dozen members competed. Mr. C. Thompson carried off first prize and put up a very good performance.

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. J. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for three weeks ending Sept. 15.

Flying Time 94 hr. 45 min. *Dual* 48 hr. 40 min. *Solo* 42 hr. 40 min. *Passengers* 3 hr. 25 min. The above times were effected on two machines. *Instruction.—With Mr. Beck*—Misses Ellison and Woodhead, Messrs. Mann, Palmer, Dujardin, Parks, Bamford, Ives, Gaunt, Arundel, Gill, Lloyd, Reynolds, A. Senior, G. Senior, A. Crowther, Fitton, Watson, Brodie, Jackson, Collins, Ostler, Batcock, G. A. Little, Dooks. *Soloists.*—Messrs. A. Senior, Dic, Fitton. *"A" Licence Pilots.*—Miss Woodhead, Messrs. Humpheries, Mann, Thomson, Ellison, Norway, Lax, Birch, Lister, Ambler, Clayton, Wood, Reynolds, A. Crowther, Wilson, R. Atcherley. *Passengers.*—15.

We regret having omitted to publish a report for three weeks owing to the absence of our Official Reporter on holidays.

By way of news, Mr. Arthur Senior went solo and put up a really good show on Sept. 2. On the 3rd Mr. Beck took Mr. Miller to Glasgow and back. During the trip the usual Scottish weather was met. On Sept. 5 our June and our George got married, and we take this opportunity of wishing them every happiness.

Amongst the visitors during the past three weeks we have had Messrs. Duncan Davis and Old Meadows of H.F.S., Messrs. Crammond, Lines, Lawson, Rimmer, Holmes, and Capt. Gladstone, all of whom we were thoroughly pleased to see.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Report for week ending Sept. 15.

Flying Time 47 hr. *Dual* 28 hr. 10 min. *Solo* 12 hr. 40 min. *Passengers* 5 hr. 11 min. *Test* 59 min. *Instruction.—With Flt. Lt. T. Rose, D.F.C., and Mr. W. H. Sutcliffe*—Messrs. A. E. Coltman, G P. Haylock, R. G. Welch, C. T. Davis, J. R. Guthrie, T. W. Wild, J. A. V. Cook, M. A. Murtagh, F. D. Scott, J. K. Morton, H. E. Evans, M. C. Wilks, F. J. Steward, H. Coleman, J. Fitzgerald. W. J. Halland, M. Blakeway, P. M. Patel, J. A. Ridsdale, J. B. Briggs, Mrs. Leigh Fermor, Dr. N. J. Nock, Dr. W. G. Tilleke, Major D. Thompson, Capt. J. C. Chaytor. *Soloists.*—Messrs. E. P. Lane, J. R. Guthrie, R. B. Laidlaw, R. G. Welch, J. W. Astley, E. R. King, R. L. Jackson, S. H. Smith, M. A. Murtagh, G. Robson, R. C. Baxter, W. M. Morris, H. E. Evans, F. J. Steward, S. Duckitt, J. Cobbe, C. W. Fellows, J. B. Briggs, W. J. Halland, J. A. V. Cook, E. R. King, R. D. Bednell, G. C. Jones, Dr. N. J. Nock, Capt. J. C. Chaytor. *Passengers.*—10.

Messrs. R. B. Laidlaw and M. A. Murtagh passed all tests for their "A" Licences.

Four members made successful first solos—Messrs. F. J. Steward, J. A. V. Cook, H. E. Evans and "Bob."

Our flying this week has been considerably curtailed by the appearance of the usual Castle Bromwich morning mist.

It will be observed that the Editor's warning under the London Club Notes of last week has been noted.—[Thanks.—ED.]

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, Hamble Aerodrome, Southampton.]

Report for week ending Sept. 14.

Flying Time 38 hr. 5 min. *Instruction* 21 hr. 25 min. *"A"* 10 hr. 25 min. *Soloists* 3 hr. 55 min. *Passenger Flights* 45 *Tests* 1 hr. 35 min. *Instruction.—With Flt. Lt. Swoffer and Mr. Dudley*—Messrs. Walker, Brodrick, Hall, Brewster, Craske, Be Turner, Tobutt, Sturge, Castley, Reuther, Evershed, Weekes, Mat Milford, Fletcher, Mrs. Gordon Smith, Cdr. Bell, Lt. DuCane, Thorn, Miss Home, Mrs. Crook, Lt. Roskill, Lt. Oswald, Lt. Coode Grace, Lt. Des Graz. *"A" Pilots.*—Messrs. Wills, Michelmore, man, Sturge, Wells, Parker, Curtis-Nuthall, McKechnie, Sym Hoare, Capt. Kirby, Lt. Heath, Flt. Lt. De Burgh, Miss Grace Hayter, Lt. Collier, S/Lt. Tillard. *Soloists.*—Messrs. Fagan, Hu Hall, Lt. DuCane. *Passengers.*—11.

We were pleased to see Miss Grace back at the Club this week her recent accident. She apparently suffers no ill effects as she the air again with all her old zest.

Mr. M. S. Hall made a successful first solo flight and we hope he will soon complete his tests for an "A" Licence.

Our activities have been considerably reduced owing to shorta aircraft, but we hope that this is only a temporary trouble.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending Sept. 16.

Flying Time 47 hr. 30 min. *Instruction.—With Mr. Young*— W. S. Coates, A. A. Rice, H. M. Smith, W. S. Rope, C. Ra R. Harvey, G. Girling, R. H. Wright, C. Land, Mrs. Cator. *Solo* Messrs. A. G. Barrett, A. G. Marshall, N. Brett, H. Neave, F. G R. T. Harmer, W. P. Cubitt, E. Lambert, D. Corsellis, A. A. G. F. Surtees, H. Malcolm Smith, H. Pank, C. Land, E. W Smith, W. A. Ramsay. *Passengers.*—19.

Once more we have our establishment complete with three planes with the return of the Avian on Friday. And our flying has accordingly grown.

Mr. Norman Brett is the hero of the week, having execute first forced landing without any petrol and without any engine. was a remarkably fine show as having flown a long way and short of petrol with a considerable head wind to contend wit promptly climbed to 3,000 so as to have time to pick out the looking field (foresight). Observing one with threshing tack operation, which gave very excellent wind direction, he made a sp landing. After walking a mile he was fortunate enough to "Mr. B. P." agent who promptly supplied the necessary fuel he returned to Norwich shortly afterwards.

As soon as he returned he once more became the hero hour by saving another member from piling up into a hangar. wind rather carried this machine forward heading straight fo corrugated iron construction. Mr. Brett put out one of his long and calmly pulled it round with an inch to spare. Mr. Lam should be very pleased with Mr. Brett.—We are.

Three machines set out to attend the Hadleigh Rally on Sat and one of them secured the second prize for the handicap. Ramsay and Capt. Harmer were the fortunate ones flying the We don't quite know how they did it but they brought the back with them. Therefore it must be all right. We are told one of our members saw a peculiar machine there which marked must be the MacFisheries bus. To his consternation it out to be the Cinque Ports bus. There is yet another story a certain Captain was seen busily polishing his Avian up with filched from a Moth. Surely a Moth would not stand for it.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. F. G. Crawford, Filton Aerodrome, Bristol.]

Report for week ending Sept. 15.

Flying Time 25 hr. *Instruction.—With Mr. Bartlett*—Messrs. A M. M. Singh, Davies, Thomas, Keeling, R. S. W. Clarke, D Hughes. *Soloists.*—Messrs. A. R. Downes-Shaw, Greenhill, Singh, T. H. Clarke, Keeling. *Cross-country Flight.*—Miss Miles Mr. Bartlett, dual cross-country to Stag Lane and return.

The women candidates for the Air League Scholarship were tained at the Club on Sept. 15. An address was given by L N. G. Thwaites, C.B.E., M.V.O., M.C., of the Air League. Durin afternoon certain candidates were interviewed by the selection mittee, with the result that six were finally tested in the air b Bartlett. The selection of the successful candidate will be anno next week.

The Cinque Ports Flying Club.

[Sec.: R. Dallas Brett, 114, High Street, Hythe.]

Report for week ending Sept. 15.

Flying Time 13 hr. 50 min. *Special Journey* 1 hr. 50 min. *Joy* 40 min. *Test Flights* 45 min. *Instruction.—With Mr. Clarke* Story, Mr. Worsell, Mrs. Skinner, Mr. Walsh, Mr. Parks, Mr. Gu Mr. Swinnard, Mr. Wood, Mr. West, Mr. Douglas. *Soloist* (*instruction*).—Mr. *Skinner* 1 hr. 15 min. *"A" Licence Pilots.* Story, Mr. West.

No flying took place during the period Aug. 19 to Sept. 8 a machine was undergoing overhaul for C. of A.

On Sept. 12 the machine was flown by Mr. Clarke over the Canal to co-operate in the Venetian Fete. Mr. G. A. Walsh endeav to bomb a motor-boat from the back seat with bags of flour. Owi the conditions, which did not allow the machine to come down to the target, no direct hit was registered, but Mr. Walsh's bo was surprisingly accurate.

On Sept. 15 Mr. Clarke flew the machine to the Suffolk Club's ing at Hadleigh and won the cup presented by that Club for the arrival after 11.00 hrs. in the Rally Competition. This is the award secured by the Club and the first time we have entere any competition.

Later on the same day one of our "A" Licence pilots, Mr. R. misjudged a landing and the resultant shock proved the great str of the new split-axle undercarriage and the inability of the fus to withstand the impact. The machine will necessarily take some to repair as the fuselage is badly damaged.

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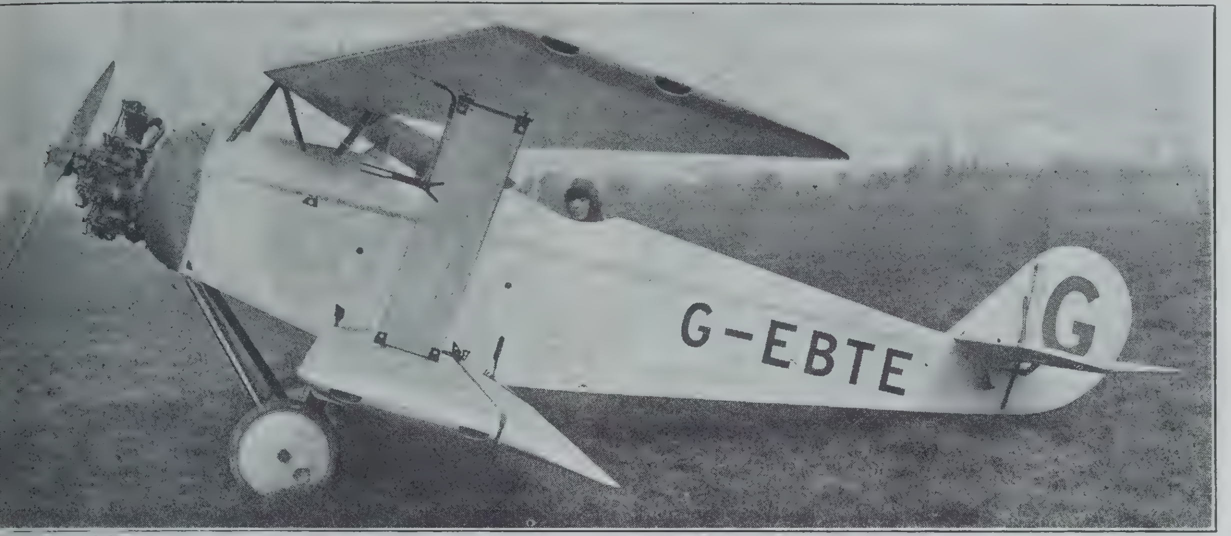

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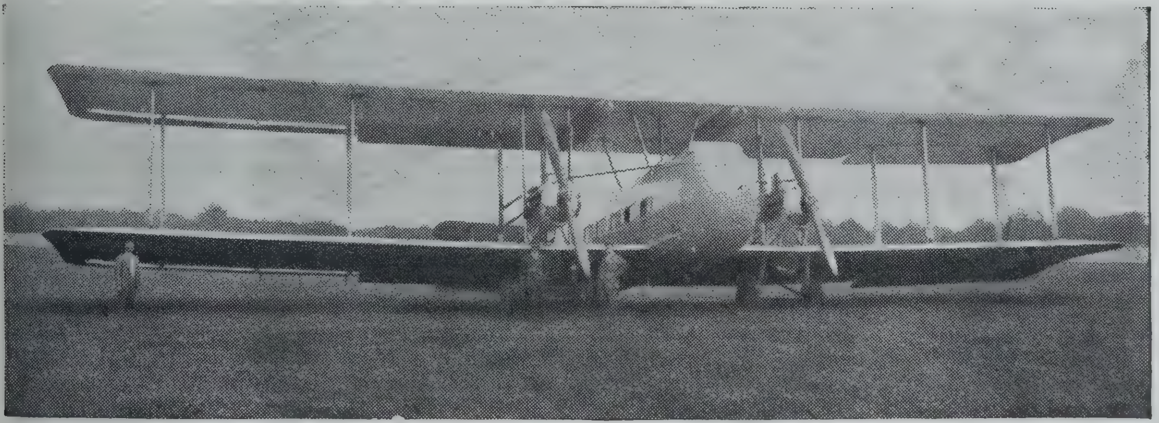

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The Liverpool and District Aero Club.

[Hon. Sec.: W. F. Davison, Hooton Park Aerodrome, Hooton.]

Report for week ending Sept. 15.

Flying Time 26 hr. 10 min. *Instruction with Flt. Lt. Allen* 13 hr. 25 min. *Soloists* 12 hr. 45 min. *Instruction.—With Flt. Lt. Allen*—Mrs. Vernon, Mrs. Eills, Messrs. Barber, Barker, Compan, Crosthwaite, Chatterley, Edgar, Foley, Perkins, Reville, Sparke, Willcox, Rev. Woosnam-Jones. *Soloists (under instruction).*—Messrs. Greenhalgh, Francis, Henderson, Moulsdale, McClure, Wilcox. *"A" Pilots.*—Messrs. Benson, Christie, Crosthwaite, Pixton. *Passengers.—With Mr. Davison*—4. *With Mr. Ward*—5. *With Mr. Brooking*—1.

We were visited on Sept. 13 by Mr. G. Merton on his slotted Moth QZ en route from Renfrew to Yeovil. Lieut. and Mrs. Bentley arrived for the week-end on Saturday evening in SO complete with Mk. III Cirrus, split undercarriage and other refinements.

Machines XX and XY gave an exhibition of flying on Saturday at Port Sunlight in connection with Lever Bros. Founders' Day Celebrations. Pilots: Allen and Christie.

Our small flying time this week is due to a number of soloists being away, and one of them buying a motor-bicycle. No flying took place last week owing to Flt. Lt. Allen not taking over till Sunday last.

The omission of flying notes was not due to the writer celebrating the granting of a subsidy to this Club—he hopes to do that on the return of our Chairman from holiday.

We much regret if we have (quite unwittingly) discouraged J. F. L. but trust he will give us an early opportunity of rectifying our omission. The "Club House" is open on Saturdays and Sundays.

The Isle of Purbeck Light Aeroplane Club.

[Sec.: Lt.-Col. Louis Strange, D.S.O., M.C., D.F.C., Worth Matravers, Dorset.]

Report for week ending Sept. 16.

Flying Time 17 hr. 20 min. *Dual* 4 hr. 20 min. *Solo* 40 min.

Club work has been somewhat curtailed this week, owing to the fact that the Spartan, living up to her name, became restless on hearing about the Milk War. Feeling it necessary to soothe her and to assist our firm friends the farmers, we offered her services to Alderman I. W. Langford, Mayor of Hereford, and Chairman of the National Farmers Union Milk Committee, who has since been airing his views and himself in almost every milk-producing area in the country, from Wiltshire to Northamptonshire, and incidentally we believe controlling the Spartan as well as the Milk War.

Our first soloist climbed to 10,000 ft. in 24 minutes and landed on the mark without the help of the Cirrus Mk. III.

The Northamptonshire Aero Club.

[Hon. Sec.: P. G. Hayward, 19, Market Square, Northampton.]

The Club has been extremely fortunate in obtaining as its first President, the Right Hon. The Earl Spencer, and amongst its Vice-Presidents are Lord Bray and Lord Erskine, Mr. C. L. Malone, M.P., and many other gentlemen, whose interest augurs well for the future of the Club.

Arrangements have now been made for the opening of the new Northamptonshire Aero Club's aerodrome at Sywell, Northamptonshire, on Sept. 29, when an Aerial Pageant will take place. Air Vice-Marshal Sir Sefton Brancker has consented to open the Pageant.

The Committee's arrangements for the Pageant are proceeding satisfactorily and, given fine weather, there is no doubt that the public will be given an interesting spectacle, as many pilots have promised to attend and compete in the various events.

The programme will contain many interesting events, including Folding and Unfolding Competitions—Balloon Bursting—Bomb dropping on Cars, Exhibition Flying and Aerobatics, whilst members of the Public will be able to indulge in their desire for thrills by joy riding at popular prices.

All private owners are cordially invited to attend the Pageant—if possible by air. For their information,—the aerodrome is situate on the Northampton—Kettering Road 4 miles N.W. of Northampton—the nearest large landmark being Sywell Wood.

Arrangements will be made for any pilots who wish to stay the night at Northampton, and the Secretaries would be obliged if notification could be given to them as early as possible at 19, Market Square, Northampton, or The Grand Hotel, Northampton. Machines may be left overnight if desired, but pegs and ropes should be brought.

The Club would welcome entrants to the various competitions, and forms of entry will be forwarded on application to the Joint Secretaries.

Flying will begin at 14.00 hr. but entrants should arrange to arrive before that time, and should report on arrival to Capt. J. Addis, D.F.C., at the Aerodrome.

FLYING SCHOOLS.

The Henderson Flying School.

[Managing Director: Lt.-Col. G. L. P. Henderson, A.F.C., Brooklands Aerodrome, Byfleet.]

Report for week ending Sept. 13.

Flying Time 45 hr. 20 min. *Instruction.—With Col. Henderson*—Messrs. Du Cane, Egston, Miss Wellby, Garthwaite, D'Eyncourt, May, Preston, Vatcha, Moursi, Taylor, Rogers, Groner, Forsyth. *With Mr. Davis*—Messrs. Oldmeadow, Austin, Kerr, Banks, Major Parkin, Mrs. Scott, Leigh, Hsiao, Mrs. Monckton. *With Mr. Davenport*—Miss Wellby, Mrs. Monckton, Messrs. Taylor, Daniel, Kerr. *Soloi* Messrs. Bankes, Groner, Leigh, May, Hsiao, Oldmeadow, A Taylor, Stewart, Miss Wellby.

The School has been kept very busy this week. Mr. Cour Bankes passed all his tests for his "A" Licence successfully. May flew his first solo.

The Belfast Flying Club.

[Hon. Sec.: R. C. Preston, 42, Windsor Road, Belfast.]

A meeting was held at Belfast on Sept. 3 to propose the form of a Light Aeroplane Club. In the absence of the Lord May Belfast, the chair was taken by Alderman Mrs. McMordie, C.B.

Flt. Lt. R. C. Preston, A.F.C., of No. 502 (Ulster) Special R Squadron, R.A.F., who is responsible for starting the Club, said he wanted 250 members to begin with. It would cost them abo a year to be a pilot member, £3 a year to be an observer member £1 a year for an associate member. When a certain amount of m had been guaranteed in this way he would approach certain whom he believed would help the Club. There was a magnificent drome site on the reclaimed land at the mouth of the harbour the Harbour Commissioners were interested in the matter and representative had discussed it with Sir Sefton Brancker. Flt Preston said that there was no site like it in the British Isles with little expense it could be made suitable for land and sea mac A machine would cost £650, but he thought he could get one for He might even get two for the price of one.

Flt. Lt. Preston took the names of about 80 prospective membe

Mr. W. A. Armstrong, the hon. secretary of the newly-formed Aero Club (Dublin), said that at the Dublin meeting the atten had not been so large as in Belfast, but they had got 100 names a number of them had agreed to guarantee the price of one ma He hoped to see a lot of friendly rivalry between the two Clubs.

Lady Heath (lately Mrs. Eliot-Lynn) also made a speech and a lecture on her air tour from the Cape to Croydon.

A WORLD'S RECORD.

The Royal Aero Club announces that a World's Recor Altitude for Light Aeroplanes has been granted to G. de Havilland, who on July 27 reached a height of metres (approximately 20,000 feet) on a D.H.60, Gipsy fitted with a De Havilland Gipsy engine.

A BRITISH LIGHT SEAPLANE RECO

The Royal Aero Club has granted a British Record to Heath who on the Short Mussel (Cirrus Mark II) on Ju reached a height of 3,889 metres (approximately 12,750

GLOBE-FLITTING.

On Sept. 14 the Vicomte and Vicomtesse de Sibour Stag Lane on a D.H. Gipsy-Moth (Gipsy engine) on a tour, which might be called globe-flitting, as the mo equivalent of the ancient pastime of globe-trotting.

The proposed itinerary is by way of France, Spain, Africa and thence to India by the usual route through Baghdad, and Karachi. After a stay in India they will ceed to Bangkok where they will leave their machine on a shooting expedition in the Malay States. Another s ing trip from Saigon will occupy four or six weeks.

The next stage of the flight will take them to China, wh they will sail for San Francisco taking the Gipsy-Moth them in the steamer. They will make a flying tour o United States and eventually return from New York to land by liner.

MR. BARNARD'S FLIGHT TO INDIA

Mr. C. D. Barnard states, in a letter to THE AEROPLANE, during the flight of the *Princess Xenia* to India, which e at Bushire, petrol and benzol in separate containers supplied to him only at Sofia, and that at this place he Mr. Alliott mixed the correct proportions of the two in drums and to ensure thorough blending rolled the d round the aerodrome before filling the fuel tanks.

This statement effectively disposes of the report that engine trouble which delayed the outward journey of *Princess Xenia* was caused by inefficient mixing of the

This report has been current for some time past in c usually well-informed. Failure of such a mixture of properly to blend is a very real danger, is capable of ducing serious engine trouble on long flights, and be this danger is not as well understood as it deserves to was held to be desirable to mention the report in spi the fact that it had received no adequate confirmation.

Care was however taken to describe insufficient mixi fuels as the *alleged* cause of the trouble, in this parti case, and one is glad to be able to record that Mr. Ba and his co-pilot were careful to avoid it.

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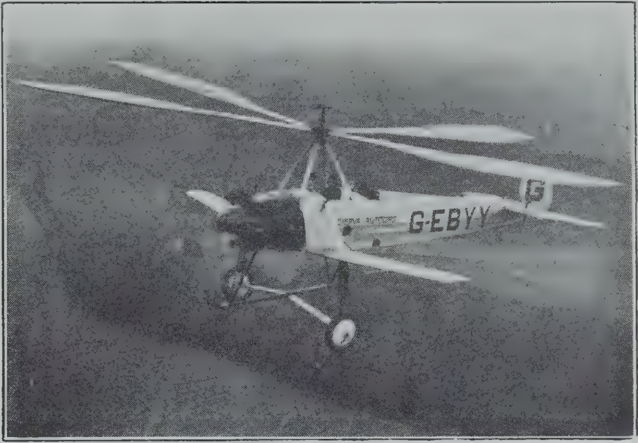

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 8; Monday, 32; Tuesday, 30; Wednesday, 30; Thursday, 30; Friday, 31, Saturday, 31.

IMPERIAL AIRWAYS LTD. :

London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 75, passengers, 692, freight 24 tons.

AIR UNION :

Paris—London and return: Machines 42, passengers 192, freight 14 tons.

K.L.M. :

Amsterdam—Rotterdam—London and return: Machines 24, passengers 148, freight 5 tons.

SABENA :

Brussels—London and return: Machines 13, passengers 49, freight 1½ tons.

DEUTSCHE LUFTHANSA A.G. :

Amsterdam—London and return: Machines 24, passengers 52, freight 3 tons.

MISCELLANEOUS :

British machines 12, passengers 16.

Foreign machines 1, passengers 1.

Total number of trips by British Machines, 86, carrying 708 passengers. Foreign Machines, 106, carrying 442 passengers.

COMPARATIVE FIGURES.

Week ending Sept. 15 :

Machines, 192; Passengers, 1,150; Crews, 367; Total personnel, 1,517.

Corresponding week, 1927 :

Machines, 161; Passengers, 972; Crews, 295; Total personnel, 1,267.

Corresponding week, 1926 :

Machines, 114; Passengers, 537; Crews, 145; Total personnel, 682.

Corresponding week, 1925 :

Machines, 122; Passengers, 572; Crews, 163; Total personnel, 735.

Corresponding week, 1924 :

Machines, 146; Passengers, 601; Crews, 177; Total personnel, 778.

Corresponding week, 1923 :

Machines, 109; Passengers, 379; Crews, 172; Total personnel, 551.

Corresponding week, 1922 :

Machines, 98; Passengers, 337; Crews, 184; Total personnel, 501.

Corresponding week, 1921 :

Machines, 66; Passengers, 154; Crews, 84; Total personnel, 238.

Corresponding week, 1920 :

Machines, 100; Passengers, 261; Crews, 123; Total personnel, 384.

Corresponding week, 1919 :

Machines, 16; Passengers, 54; Crews, 18; Total personnel, 172.

Note.—In addition to the Croydon traffic shown above, K.L.M. have during the past week run 11 machines, carrying 4 tons of newspapers between Lympne and Ostend.

Croydon Notes.

The comments made as to the behaviour of certain private pilots in neglecting entirely to comply with the Customs and other regulations on their entry into France in the account of the Orly meeting in THE AEROPLANE last week are entirely approved in some circles at Croydon.

The private pilot leaving Croydon for a foreign destination can count on receiving from everybody at the London Terminal Aerodrome every possible advice and assistance, even from busy officials of commercial concerns who are not under any obligation to give their assistance. If, however, he makes himself a consistent nuisance, this state of affairs will change.

Imperial Airways traffic staff are almost invariably asked by such private pilots to lend their aid in filling up the various clearance and the like papers, and in fact do so. The official traffic staff and the Customs Officers are invariably helpful to any one who seeks for accurate information as to the regulations covering flights out of the country.

Yet these regulations are consistently broken. Such casual passers-by will clear the Customs for a declared destination, and disappear into the blue without notifying the Traffic Office of their departure or giving details of their intended itinerary. They will then land at some intermediate point short of the declared one, and even spend the night there without notifying anybody.

Their non-arrival at their destination after the expe
time means a lot of entirely unnecessary wireless inqu
which interfere with normal and necessary messages,
public money and worry the traffic staff.

Many pilots of private machines neglect entirely the
lations, framed solely for their own safety, as to flyi
circuit round Lympne and St. Inglevert before and after c
ing the Channel. When any machine known to be cros
is not reported from these two aerodromes and is not o
wise satisfactorily accounted for, steps to organise a Cha
search for it are taken automatically.

One private machine recently left Croydon for France,
not seen by either station, and had not arrived at its decl
destination until long after it should normally have
so. After warnings had been sent out to all concerne
search for the presumed wreck it was discovered—al
accidentally—that the machine had landed in Kent and
its crew were enjoying a prolonged lunch with some fri

The idea that once they have cleared Customs at Cro
or Lympne they have no further concern with the Custo
even of the country of their destination—seems very p
lent. So far the French authorities have handled such t
gressors very gently. One of these days a careless pr
owner will land quite innocently in a French Military
hibited area, with no evidence that he is entitled to b
France at all, and is likely to regret his indiscretion.

These annoying failures to comply with what are r
simple and sensible rules are the result of pure ignora
For that ignorance our Air Ministry is in part respons
because the succession of regulations, notices, cancellin
notices and the like which they issue for guidance in t
matters is barely comprehensible to anybody who has
grown up with the regulations themselves.

The Royal Aero Club, which provides private pilots
their *carnets* (or triptyques) for foreign touring could
a good deal of trouble if they would issue with each
carnet a succinct and clear statement of the most impo
regulations which the touring private owner must observ

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FORTHCOMING MARRIAGES.

GOODE—SCALES.—The engagement is announced between Flt
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daughter of Mr. and Mrs. W. A. Scales, of Wydville, Bosham, Su

JONES—BILLINGS.—The marriage arranged between Philip J
R.A.F., and Nowelle, elder daughter of Mr. and Mrs. G. M. Bill
of Victoria, B.C., late of Shanghai, will take place in Holy
Crofton, on Oct. 6.

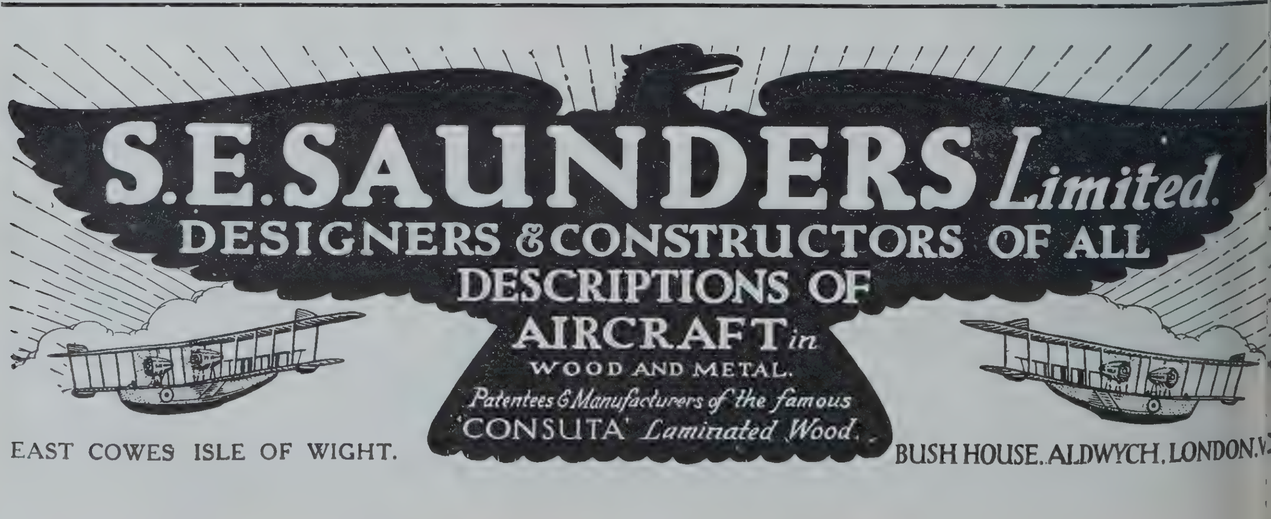
KNOLLYS—COATS.—The marriage arranged between Vis
Knollys, D.F.C., and Margaret, daughter of Sir Stuart and Lady
of Ballathie, Stanley, Perthshire, will take place at St. John's Ch
Perth, on Oct. 11.

BIRTHS.

BALLANTYNE.—On Sept. 9, at 4, Oakdale Road, Streatham
Muriel (*née* Cuzner), wife of Capt. Gordon Ballantyne, D.F.
daughter.

PIRIE.—On Sept. 8, at 23, Kingsborough Gardens, Glasgow, to
wife of Sq. Ldr. G. C. Pirie, M.C., D.F.C., R.A.F.—a daughter.

SOWREY.—On Sept. 6, at a nursing home, Hampton Hill, to
(*née* White), wife of Wing Cdr. Frederick Sowrey, D.S.O.,
A.F.C., R.A.F.—a daughter.



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THE AEROPLANE—SEPT. 26, 1928.

AN R.N.A.S. HISTORY

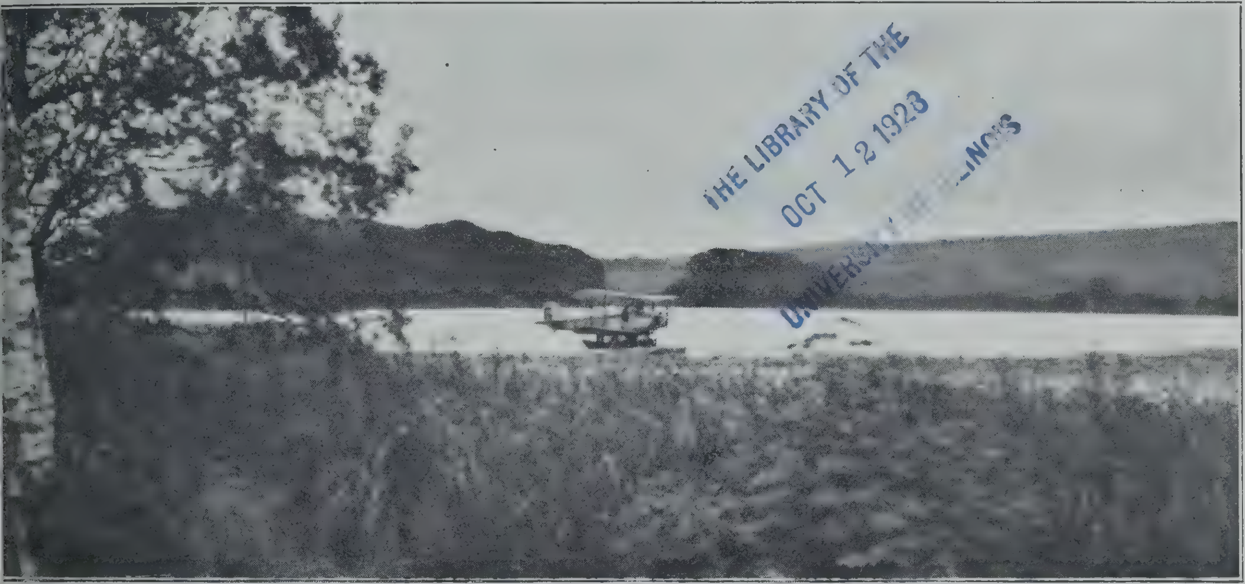
THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXXV. No. 13. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

I'LL TAKE THE HIGH ROAD.—(*"Loch Lomond."*)



THE HIGHEST WAY TO SCOTLAND:—Col. Sempill's Blackburn Bluebird (Genet engine) on Martraham Loch, near Ayr. By a photographic illusion the boat behind the floats gives the impression that the undercarriage has collapsed.

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ON A NORTH SEA AIR STATION.

t precisely is the proper function of written history? nably it is to give us, and future generations, a know- of what has passed so that thereby the best in those nay be imitated and the bad may be avoided in time ie.

ie days of one's youth the teaching of history consisted in compelling unwilling pupils to learn parrot-fashion mes and dates of the Kings and Queens of England, were about as enlightening as the catalogue of the of Israel, or else in trying to work up an interest in told stories of the doings and the wars of such chs. Older pupils were burdened with the faked facts caulay and Froude. And it was not till we came to ge of studying English Literature that we were intro- to Motley and Prescott. Also we learned some history, too accurate, from Sir Walter Scott, Dumas, Lever, and Henty.

ay the young are taught from history-books which are eresting as novels and quite reasonably accurate. ical novels are as popular as detective stories. And ar 1914-18,—popularly known as The Great War, it lasted only a trifle over four years,—has produced est of histories all about itself the volumes of which merous enough to cover with real books the famous ack-covered wall of the Royal Automobile Club.

y, of the making of books there is no end,—and of endless books those which purport to be histories are bout as good or as bad as the others. Consequently f them are bad. And so when a good history is pro- it is an event to be celebrated.

sub-section of historical literature which has told of e in the air has produced some remarkable books.— one may remark that autobiography is just as much as is any statement of events by an onlooker. And iction, when it is strictly true to life, may be good

most remarkable historical works, in English at any roduced so far by Air War as waged in 1914-18 have *n Airman's Outing* by Alan Bott; *Five Years in the* by the late Major James McCudden V.C.; *R.F.C.*, by Maurice Baring; *War Birds*, by an American aviator Grider, killed in action; *Nocturne Militaire* by another can named Elliott Springs; and the first volume of the history *The War in the Air*, written by the late Sir Raleigh,—the second volume is doubtless a praise- collection of historical facts, but it is not a remark- ok.

A WORTHY SUCCESSOR.

hese must now be added *The Story of a North Sea Air*, by C. F. Snowden Gamble, which has for its sub- he meticulously accurate yet comprehensive phrase *g some account of the early days of the Royal Flying (Naval Wing) and of the part played thereafter by the tion at Great Yarmouth and its opponents during the* 914-18." And it is the more remarkable because it es within itself all the qualities which have made suc- r each of the books afore-mentioned.

Gamble has one great advantage over official historians he has had a free hand to say what he liked and to hat he did not like, subject only to the dictates of his onscience and his own good taste, and to a modified f censorship which he endured voluntarily to make at he did not disclose in print anything hurtful to the Fighting Services which he might have learned in his gh and painstaking search for truth.

he has been able to include personal letters which perhaps be out of place in an official history,—though dd much to the interest of the story and to the gaiety ons. And he has been able to omit dull strings of hich an official historian would have to use, though s of little value. Also he has been free to express s and to draw conclusions which would be improper official historian. To his credit be it said, he has nothing which could throw light on his subject, and never has he sinned against good taste though on occasion the story expands into patches of that broad, and sometimes grim, Eighteenth Century humour which was commoner in the days when England was in the making than in those so very refined years before the outbreak of War in 1914. And where he has expressed opinions he has done so with the logic and impartiality of a British judge.

Another remarkable feature about the book, which adds immensely to its value and interest, is Mr. Gamble's scheme of giving the German view of the more notable events which have first been told from our side. This enables the reader to form a just estimate of those gallant fighting men who were our enemies and are now our very good friends.

THE HISTORY OF A HISTORY.

In many other ways the book is remarkable, and because of its importance to all who have to do with flying—especially to the officers and men of the Royal Air Force—something more may fittingly be said here of the book's own history than would be meet or proper in a paper which was not, so to speak, an aeronautical family affair, as is THE AEROPLANE.

The original idea, arising out of the annual dinner of the survivors of the Yarmouth Air Station, was to produce a little paper-covered story of what was done at the Station during the War 1914-18. Two or three former officers of the R.N.A.S. who had served at Yarmouth, agreed to put up the money for paper and printing, and Mr. Gamble agreed to write the story purely out of love for his old Service.

Mr. Gamble is not a professional writer. Still less is he a journalist. Which is probably the chief reason why the book is so good, and why it is written in such straightforward honest English. So far as one can discover he had never written anything else for publication before setting to work on this story. He is an engineer by trade, and served his time with Hans Renold in Manchester. That explains why the parts of the story fit together so well, and work into one another with the inevitability of a train of gears, or a silent chain.

He began by collecting a few facts about Yarmouth, and soon found that the paper-backed brochure (as catalogue-makers call the things) was quite inadequate. So the brochure became a book.

Then there seemed to be an obvious need to explain why and how Yarmouth ever had an air station to make it a historical place, and to save it from oblivion outside the herring season. Explaining the why and wherefore of Yarmouth meant explaining the existence of the Royal Naval Air Service, and of the Royal Flying Corps (Naval Wing) which existed before the R.N.A.S. came into being on July 1, 1914. And that necessarily meant making a history of the Admiralty's development of aviation in general. The result is a clear and concise history of the R.N.A.S. up to the outbreak of War,—a history which was badly needed.

Thereafter the story is primarily concerned with Yarmouth Air Station. But, again to make it understandable, Mr. Gamble has had to describe the general policy of the Admiralty. And so the reader gets a very good idea of the amazing combination of foresight, ingenuity, driving force, and fatuous stupidity, with which the R.N.A.S. was handled throughout the War,—though, in the kindness of his heart, or perhaps because of loyalty to those who were set in authority over him while in the Service, he has not made as much of the stupidity as he might have done if he had been more concerned with lessons for the future than with a tale of the past.

BEHIND THE SCENES.

One had the privilege of being somewhat behind the scenes while the book was being written, and so one can disclose yet another remarkable fact about it. The whole thing was a spare-time job. It has taken eighteen months to do, and to do it in that time is in itself a remarkable feat. There are 260,000 words in the book,—and 80,000 words make a long novel,—yet none of it is dull and none of the words are superfluous.

The amount of work to be done in collecting and collating the material which at the end was *condensed* to more than a quarter of a million words can only be imagined. Letters and documents had to be acquired, sorted, examined, selected or rejected, copied, and condensed or rewritten. The correspondence with officers and men, with official people, with aircraft makers, and all sorts of folk, was enough to keep an office going. Then individuals of all ranks and grades, Service and civilian, had to be interviewed.

All the typing, from Mr. Gamble's manuscript and from letters and documents which had to be copied, was done by Mrs. Gamble. The original manuscript was naturally a good deal longer than the book. It was emendated, condensed, and typed out again. Then it was re-arranged, edited again, and the final fair copy for the printers was typed. So that, what with the three copies of the complete type-script, copies of letters and documents, and all the correspondence, Mrs. Gamble must have typed well over a million words while engaged in this great undertaking. One is sure that all those who served at Yarmouth will, when they see the result of this work, feel deeply indebted to this gallant lady for so bravely sticking to her task and devoting practically the whole of her time for more than a year to perpetuating the prowess of their station. And, for the matter of that, every reader of the book who knows this story of its generation will equally appreciate her work.

A Labour of Love.

The outstanding characteristic of the book is its absolute sincerity,—which is yet another reason why it is so good. It is written without ulterior motive, and without political pull or prejudice. Its sole object is to tell the story of good work well done. And all who have been concerned with its production seem to have made it a labour of love. It is dedicated :—

> To the Memory of the Officers, Non-Commissioned Officers and Men of the British Flying Services who, living, gave of their best, and who, dying, gave their all.

It is worthy of them. Officers and men who served at Yarmouth have given their best in writing their reminiscences of events in which they had part. Our friends and former enemies in Germany have helped in the same spirit, and their letters show as fine a chivalry as ever war has produced. The book is as great a monument to their g dead as it is to our own people.

Others, less favoured by fortune, who have never ha privilege of wearing the King's uniform, have helped, according to his kind but with the same good will.

The printers are the Oxford University Press,—the producers of books in this country, which is to say i World. They seem to have caught the enthusiasm the others who have had to do with the book and to put their best work into it. The paper and type are to behold.

The pen-and-ink drawings by Leonard Bridgman, give in review the quaint types of aircraft used in the war of the period are among the best work which tha tinguished artist has done. And they add considerab the historical value of the book in that Mr. Bridgman hi was an officer at the Yarmouth Air Station.

Even the makers of the half-tone blocks,—members trade, tribe, guild, or calling which seldom shows sig having a soul, artistic or otherwise,—seem to have ris the occasion and to have done work worthy of the sul which they have had to illustrate.

Anybody who knows anything of the making of books see at once that at the price at which it is being sol book is a gift to the Nation and not a commercial pr tion. Neither the financiers nor the author can get any out of it, and the printers cannot do more than pay way. Only those modern parasites the middlemen, in case the retail book-sellers, can make their usual profi of it,—and, if the book causes the stir which it deserves, ought to grow fat on it.

Because of the space which has to be given to tech matters this week, there is no room to deal in detail the story which is told in Mr. Gamble's book. One h to do so next week. In the meantime one recommends reader of these notes to lay hands on it somehow. Wh starts on it will find, like its author, that he or she has spare time for ought else till it is finished.—C. G. G.

[*The Story of a North Sea Air Station,*—C. F. Sno Gamble. 446 pages. 34 photographs. 27 drawings, a chart. The Oxford University Press. 21s. net., from The Aeroplane Book Department, Cannon H Pilgrim Street, Ludgate Circus, E.C.4.]

ON IMPERIAL AIRWAYS.—*(Continued.)*

The Chairman's Speech at the Extraordinary General Meeting, Sept. 7, 1928.

I propose now to give you further information in regard to the new Agreement which has been negotiated with His Majesty's Government, which your Board asks you to approve by adopting the necessary amendments to the Articles of Association of the Company.

For your convenience I think it will be as well to go back a little into past history. You will recollect that almost two years ago we negotiated an Agreement with the British Government for a fortnightly service between Cairo and Karachi, which, owing to difficulties with the Persian Government, was changed, by agreement with the British Government, to a weekly service between Cairo and Basra.

This service, as you know, has been an outstanding success in the history of civil aviation. Nevertheless, whether a fortnightly service between Cairo and Karachi, or a weekly service between Cairo and Basra, it represented only a link—although certainly a most important link—in a line from England to India. Your Board has urged His Majesty's Government to support the other links necessary to complete this one Empire Air Route and thereby give civil aviation the opportunity which it needs to show its real value—the service of speed over long distances.

I am happy indeed to say that in this your Board has been successful, and the new Agreement has as one of its main features the establishment, firstly, of a weekly service between England and India, with most modern aircraft, having a carrying capacity of 1½ to 2 tons. As traffic develops, it is intended to make the service a bi-weekly one.

The Agreement also provides for the more rapid obsolescence of your fleet and the consequent more rapid replacement by more up-to-date units. In fact, the financial provision allows for this change in the fleet on the main routes of the Company to be made every four years. It does not mean, however, that the aircraft so replaced have to be scrapped because, as I told you in my earlier speech, owing to the very high standard of maintenance which is necessary in commercial aviation, an aircraft written off by obsolescence is maintained up to the date of write-off at the highest efficiency and can thereafter be used for the development of new lines on unsubsidised flights free of the burden of obsolescence and insurance, equal to about 40 per cent. onto the direct operational cost.

Another provision of the new Agreement is the transfer to the Company of two large three-engined all-metal flying-boats, built largely to our specification, of most modern design, on favourable terms. One of these, you will have noticed, was recently on view in the Thames, opposite the Houses of Parliament.

The financial aspect of the Agreement is, of course, most important, and the estimates for the additional links in the route were prepared in the light of the experience gained by the Company in their operations up to date. Your Directors feel confident that, with the prudent administration which has brought about the greatly improved financial position of your Company to-day, the results of the new Agreement should be satisfactory to the proprietors, though I am bound to admit that the Government are hard bargainers.

Subsidies.

The subsidies to be earned by the Company for European se on the existing basis, as well as for the new weekly service England to India, amount to £335,000 per year for the first two £310,000 per year for the next four years; £220,000 for the seventh £170,000 for the eighth year; £120,000 for the ninth year; and £70,0 the tenth year; commencing from April 1 next—a total of almos and a half million pounds, as compared with under six hundred sand pounds remaining to be earned under the existing Agreen So you will see that your Company has a greatly extended secur tenure of Government support, representing an extension of five for the existing European Agreement and over seven years i case of the existing Middle East Agreement.

In addition to this the subsidy for the European services fo current year, which should have been reduced by £25,000 unde existing Agreement, is, under the new Agreement, maintained existing level.

Under the terms of the new Agreement, and in return fo abandonment of your existing obligations, of which I will remin later, you are asked to issue to the Secretary of State for Air deferred shares of one pound each, credited as fully paid. Durin period of the Agreement, these deferred shares have no dividend until after the ordinary shareholders have *received* 10 per cen the paid-up capital. If the ordinary shareholders receive a div exceeding 10 per cent., then the sum to be paid as dividend t deferred shares is to be equal to the sum paid to the ordinary holders above a 10 per cent. dividend.

In other words, the Government gets half of any profits *distribute* over the sum necessary to pay 10 per cent. dividend.

After the expiry of the new Agreement, the deferred shares a be entitled to half of the profits *available for distribution* in e of a sum representing 10 per cent. on the ordinary share paid-up ca

Now, that is what the new Agreement provides financially; an your comparison I would remind you that under the old Agree after the ordinary shareholders had received a dividend of 10 per on their paid-up capital, one-third of the balance only was avai for distribution among the ordinary shareholders, one-third ha go towards repayment of subsidies received, and one-third ha be applied to some rather vague object called the "developme the Company"; and in addition to that, at the end of the Agree if the repayment of the subsidy at the rate of one-third of the su profits as described above had not wiped out the total subsidy ments amounting to one million pounds, there was an obligatio the Company to repay any balance of the subsidy out of its reso That obligation to repay subsidy is completely wiped out in the Agreement.

I think you will agree that these terms, with a very much l amount of subsidy, are satisfactory and should render material a ance in the development of civil aviation on a commercial basis.

In the unlikely event of the winding up of the Company, deferred shares rank for repayment in the following manner :—

He could not have done better!

"... he used Napier engines so that he could not have done better as regards his power plant. The log of the Southampton flying boats on their voyage to Singapore shows how extraordinarily reliable these engines are."

Aeroplane
8th Aug., 1928

The Napier engines in the four Supermarine Southampton flying boats selected for the Royal Air Force flight from England to Australia, round the coast of Australia and back to Singapore, have flown 177,240 *engine miles without any trouble whatsoever. They were standard Napiers taken from Stores without any special testing.*

If you select the tried and proved Napier for your aircraft, you will get this reliability combined with a high performance and efficiency unequalled by any other aero engine of like power.

NAPIER

The Finest Aero Engine in the World

'Grams:
Moneyer, Act,
London

D. NAPIER & SON LTD.
ACTON · LONDON · W.3

'Phone:
Chiswick
1220

In the event of a compulsory winding up, the deferred shares rank *pari passu* with the other share capital. In the event of a voluntary winding up, and where assets are insufficient to repay the ordinary and deferred shares in full, the deferred shares rank *pari passu* with the ordinary shares. If, however, the assets are more than sufficient to repay the ordinary and deferred shares in full, then, after repayment in full of the ordinary and deferred shares has been made, the remaining assets up to a total of £200,000 are to be divided as to one half to the ordinary shares and one half to the deferred shares. Any assets in excess of £200,000 are to be divided as to three quarters to the ordinary shares and one quarter to the deferred shares.

In view of the large amount of money which the British Government is paying to the Company by way of subsidy for the development of commercial aviation, it is obviously desirable from the national point of view that the continued existence of the Company should be assured for the object for which the subsidy is being paid, viz., the development of commercial aviation on Empire air routes.

Therefore, these deferred shares, so long as they are held by the Secretary of State or his nominees, have powers of veto on any resolution for the voluntary winding up of the Company.

If at any time the British Government is desirous of disposing of the deferred shares, the Company has the option of nominating a purchaser or purchasers at the price at which the British Government is prepared to sell.

Ladies and Gentlemen, your Directors have given long and most careful consideration to this most important provision in the new Agreement concerning the issue of these deferred shares to the British Government, which releases your Company from the very serious obligation which exists under the present Agreement to repay to the Government the subsidy paid to the Company; and I hope that, after I have answered any questions you wish to raise on this point you will give your assent to the proposed alterations to the Articles of Association of the Company, which have been circulated to you, in order to give effect to the new Agreement, which your Board believes to be of great value to your Company.

DETAILS OF NEW AGREEMENT.

In connection with the details of the new Agreement, I would like to say a few words. In the past, details of our Agreements with the Government have been made public, and experience has shown this to be detrimental to the interests of your Company. I hope, therefore, that—solely in the interests of the shareholders—you will not press me to answer questions concerning the operational details of the Agreement. I have gone to some length to explain in complete detail the matter concerning the issue of these deferred shares to the Government, and the release of the Company from the obligation to repay the subsidy, and I am, of course, anxious to answer any questions you may wish to put having regard to the Company's interests.

THE FUTURE OF CIVIL AVIATION.

I would like here—if you will bear with me—more especially because it is the last time I shall address you from the Chair—to give you the picture of civil aviation as we see it and as it has been before us when negotiating this Agreement with the Government.

The experience of the last four years, and of the earlier years since the War, when commercial aviation was in the hands of our constituent companies, has been invaluable, and we have learnt much about the new science of civil aviation, and collected data of the greatest importance. We see that under conditions as they exist in this small Island, with highly developed transport services going from the centre of cities, with bad weather for flying—our greatest enemy being fog and snow—and with aerodromes necessarily several miles outside great cities, our future lies in the long-distance Empire Routes.

In my earlier speech I asked you to visualise London to the Cape and Australia by air. That can be accomplished, and can, I believe, be accomplished commercially, provided we can be given sufficient support during the early years. During these years of our London—Karachi Service (which I look upon only as a first instalment) we shall, under the financial provisions of the new agreement, develop improved and more economical types of machines much more rapidly than has been possible in the past. We shall greatly develop the air sense of the public, and build up, as our Cairo—Basra service has shown us we can build up, the air mail habit in the population.

The longer the route, the more our speed tells in comparison with sea and rail transport, and the public will pay, not for transportation as hitherto, but for the saving in time which our speed gives; the saving of weeks in the transmission of financial documents, plans, samples, bullion, is a service for which high rates of carriage can be demanded when the public understands how to use it, and the public will be prepared to pay for the saving which that speed gives them, and not merely for transportation, as is the case to-day with our traffic to and from the Continent.

On a long route, such as we visualise, we start with a weekly service, because that is all for which we can get traffic and is the minimum service with which we can hope to develop traffic. In a weekly service like that over a long Empire Route, the waiting time of aeroplanes at each stage is so much waste; but the moment sufficient traffic is offering, we can duplicate the service with practically no increase in capital expenditure or in obsolescence, and we look forward to the London—Karachi route being commercially successful and independent of subsidy at or before the expiry of our ten years' Agreement, with greater frequency of service than once per week in either direction.

It is in the development of these Empire Routes mainly that our mission as Imperial Airways lies.

On this route we shall fly the Mediterranean with the newest type of seaplane. If these marine aircraft are as successful as we have reason to hope, we foresee, clear of many of the diplomatic and international difficulties which hamper us to-day, a vast extension of flying by marine aircraft to many outlying parts of the Empire.

We have been unable, hitherto, to develop the marine side of civil aviation; but the Air Ministry, in close co-operation and consultation with us, has this year made notable strides in that direction, and I think that in the near future we shall be prepared to tackle the
oversea flights which will take us from Singapore to Australia.

I have often been asked why civil aviation should need a su
before it can be commercial, when land and sea transport deve
commercially without subsidy. Many of you, no doubt, have
individually asked or have asked yourselves the same question,
my answer may interest you.

Land and sea transport developed from the comparatively valu
sled or ox-wagon and dug-out canoe, as the needs of the prin
world developed, until we got to the luxurious Pullman car
palatial liner of to-day; civil aviation starts, not in a primitive w
but in a highly developed world. It starts, not with a valueless du
canoe or ox-wagon, but, because of the medium through whi
passes, with the very highest and most costly product of men's sc
and skill, and with a record of heroism and loss of life in its
days which quite naturally has made the public sceptical as
safety and reliability. That scepticism and lack of faith is pas
passing, and if the Government wisely and prudently helps us in
early days, as our Government is helping us, though only to a
extent, civil aviation can undoubtedly, in my opinion, within the
time of most of us, become, on these great Empire Routes, an
pendent and profitable form of transportation and saver of time
this highly developed world of ours there is no truer saying in
nection with civil aviation than that "time means money," and
save our customers' money they will be prepared to pay us somet
more than mere transportation rates for the saving we enable
to make.

In the development of civil flying there appear to me to be
more or less incoherent schools of thought—one which regards
figures of aeroplane miles flown, machines in existence, and
trained yearly, and looks at a map with aeroplane routes sp
webbed across it, and says, "That's fine"; and the other, the
which looks to the commercial development of flying and its ulti
independence of subsidy.

The British Government is undoubtedly adopting the second m
outlook—and by far the wisest, if we are looking at civil avia
commercially and not as a means of development of an auxi
military arm, nor as a means of peaceful penetration into
countries.

This Agreement, which we commend to you for your ratificatio
the fruit of our minds working purely on the lines of successful
mercial development. From that point of view—and I concern m
in this room with no other point of view—the Government is fo
ing a right and proper course; but, of course, no one is ever
tented with what a Government does, and therefore I am thorou
discontented with the paucity of the assistance. I would like
Government to have said: "We give you this Agreement now; we
shortly enter into a further Agreement with you to go to the
or to Singapore, and then a further Agreement to go to Austr
We will settle with other Empire Governments what their share
be." They have not said so, and "Not one penny more" has
their cry. "Go get other subsidies, if you can," has been
refrain; but I am sure that, once this route is organised, in the
year or two extensions, and further assistance in the early year
the new sections, will be forthcoming.

Now, that, briefly, is the future as I see it for Imperial Airw
There is another future for feeder lines, for special charters, for
work, for the use of aircraft by our large business firms, al
which will in time come into its own; but the great missio
Imperial Airways as I see it is on Empire routes, the great
trunk arteries, assisting the newcomers with its experience, advice
technical skill to act as feeders to the great routes which we
template and which we are starting under this new Agreement, w
I hope you will shortly ratify. To be economic, however, the
trunk routes must be in one hand.

My colleagues on the Board and I are convinced that the very
interests of the shareholders are being served in these matter
which you are asked to give your approval. We are satisfied that
have, in the much greater security of tenure and additional fina
support for the route contemplated by this Agreement, somet
which will not only place the Company and British Civil Aviatio
a sounder foundation, but also something which provides gr
security for a return on the capital which you have invested.

SAFEGUARD OF NATIONAL INTERESTS.

Whilst putting before you the alterations in the Articles of Ass
tion in order to permit the Company to ratify the new Agreement
the Government, your Directors are taking the opportunity of as
you to rectify a weakness which has become apparent in the exis
Articles of Association.

At present, although under the Articles no one who is not a Br
subject is allowed to hold shares in the Company, there is not
to prevent foreign influence entering into the dictates of your
pany's policy by what I might call "back-door methods."
Directors, therefore, with the weight of His Majesty's Govern
behind them, are asking you to make the other alterations to
Articles of Association which have been circulated to you and w
have been designed to preclude any possibility of foreign interes
control.

The Chairman concluded by moving that the resolutions, as
mitted to the meeting, be passed.

The resolutions were seconded by Sir Samuel Instone and un
mously adopted.

On the motion of Mr. F. A. Szarvasy, seconded by Comma
Harrington-Edwards, a cordial vote of thanks to the Chairman,
which was coupled an expression of regret at his retirement from
board, was carried unanimously.

The Chairman briefly replied to the compliment, and the proc
ings terminated.

DOVER HARBOUR A CUSTOMS AERODROME.

The Outer Harbour, Dover, has been approved as a Custo
Aerodrome by the Air Ministry, with the concurrence of
Commissioners of Customs and Excise.

Fairey "III F." *General Purpose Type.*

The Fairey Aviation Company Ltd.,
Hayes, Middlesex.

AIREY

THE ROYAL AIR FORCE.

The London Gazette.

September 18.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—The following are granted perm. comns. in the rank of Plt. Offs. with effect from Sept. 10 and with seniority of Sept. 10, 1927:—J. F. X. McKenna, E. M. Thomas, R. S. Collins, P. Kinsey, P G. Thomson, L. Currie, M. V. Delap.

The following Flg. Offs. are granted perm. comns. (Sept. 1):—R. R. Bennett, J. M. Cohu, A. C. Evans-Evans (Sec. Lt., Northants Regt., T.A.), G. D. Green, A. W. B. McDonald, A. E. Paish, H. M. G. Parker, G. B. M. Rhind, G. J. Southam, W. A. Tattersall, H. M. S. Wright.

The following Plt. Offs. are promoted to the rank of Flg. Off.:—R. F. Gandy (July 4); A. R. S. Davies (July 4); H. A. G. Comerford (Aug. 30); B. M. Cary (Sept. 11).

Flg. Off. S. T. Clemens is placed on the retired list on account of ill-health (Sept. 12). Flt. Lt. G. M. Moore, M.C., is placed on the retired list at his own request (Sept. 19). The following Flg. Offs. are transferred to the Reserve:—CLASS A.—L. H. Ross (Sept. 12); C. G. M. Anderson, D. C. Burnley, K. Maconochie, C. N. A. B. Mumby, S. M. Thomas (Sept. 15). CLASS B.—S. G. Newport (Sept. 12); W. W. Whitehead (Sept. 16).

MEDICAL BRANCH.—Flt. Lt. J. Hutchieson, M.B., is granted a perm. comn. in this rank ((Sept. 12) (substituted for the notification in the *Gazette* of Sept. 11).

CHAPLAINS BRANCH.—The Rev. R. H. Horton is granted a S.S. comn. as a chaplain, with the relative rank of Sq. Ldr. (Sept. 13).

MEMORANDUM.—Flg. Off. J. H. Truscott is granted permission to retain the rank of Flt. Lt. on retirement from the Army (June 23, 1926).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—The following are granted comns. in Class AA (ii) as Plt. Offs. on probation (Sept. 3):—R. M. Clarkson, D. H. Duder, R. F. G. Lea. The following Plt. Offs. are promoted to the rank of Flg. Off.:—J. M. H. Hoare, J. D. Williamson (Sept. 14); B. B. F. Russell (Sept. 17).

The following are confirmed in rank:—Flg. Offs. on Prob.—R. P. D. Brailli, G. M. Cox, M.C., C. T. E. Smith (Sept. 6). Plt. Offs. on Prob.—H. O'B. Howat, H. R. Turner (Sept. 5); T. R. Morrison (Sept. 6). Flt. Lt. S. H. Gaskell is transferred from Class A to Class C (Aug. 11).

The following resign their comns. on appointment to perm. comns. (Sept. 10):—Class A.A. (ii).—Flg. Off. J. F. X. McKenna, Plt. Off. P. G. Thomson, Plt. Off. P. Kinsey, Plt. Off. L. Currie. SPECIAL RESERVE.—Plt. Off. M. V. Delap.

Appointments.

Week ending Sept. 24.

GENERAL DUTIES BRANCH.—Group Captain A. D. Warrington-Morris, C.M.G., O.B.E., to R.A.F. Depot, Uxbridge, Supernumerary, 17/9.

Wing Commanders R. J. Mounsey, O.B.E., to R.A.F. Reception Depot, West Drayton, to command, 6/9. E. R. C. Nanson, D.S.C., A.F.C., to R.A.F. Base, Calshot, pending taking over command, 1/9. J. H. S. Tyssen, M.C., to H.M.S. *Argus*, for duty as Senior Air Force Officer, 8/10.

Squadron Leaders R. M. Bayley, D.F.C., to R.A.F. Base, Calshot, 24/9. E. J. P. Burling, D.S.C., D.F.C., to M.A.E.E., Felixstowe, 20/8. W. R. D. Acland, D.F.C., A.F.C., to Air Ministry (D.O.I.), 24/9. M. Thomas, D.F.C., A.F.C., to R.A.F. Cadet College, Cranwell, 1/9.

Flight Lieutenants L. G. Le B. Croke, to R.A.F. Base, Calshot, 17/9. E. S. Moulton-Barrett, to R.A.F. Base, Calshot, 17/9. T. H. Newton, D.S.C., to No. 2 F.T.S., Digby, 14/9. F. E. Bond, to No. 41 Sqdn., Northolt, 17/9.

Flying Officers C. W. Martin, to Home Aircraft Depot, Henlow, 11/9. M. Brunton, to No. 10 Sqdn., Upper Heyford, 30/9. F. W. Field, to No. 7 Sqdn., Worthy Down, 10/9. C. W. Dicken, to No. 101 Sqdn., Bircham Newton, 12/9.

Pilot Officers W. S. C. Adams, R. A. Beynon, E. J. Brighton, D. A. Craik, E. B. Grace, G. D. Hoyland, R. Jones, G. S. King, J. Lewis, S. S. MacKay, G. R. Montgomery, M. G. Parker and S. P. Richards, to No. 1 F.T.S., Netheravon, 8/9. J. F. X. McKenna, E. M. Thomas, R. S. Collins, P. Kinsey, P. G. Thomson, L. Currie and M. V. to No. 1 F.T.S., Netheravon, on appointment to Perm. Comns.,

STORES BRANCH.—Flight Lieutenant E. V. E. Andrewartha, to Station, Northolt, 15/9.

ACCOUNTANT BRANCH.—Flying Officer S. C. Wyatt, to No. 503 Waddington, 20/9.

CHAPLAINS BRANCH.—The Rev. R. H. Horton, to School of T.T. Manston, on appointment to a S.S. Comn., 13/9.

The Far East Flight

Sir Samuel Hoare, Secretary of State for Air, has sen following telegram to Group Captain H. M. Cave-Bro Cave, D.S.O., D.F.C., Commanding Officer, Far East Fl R.A.F., which consists of four metal Supermarine S ampton flying-boats each equipped with two Napier engines:—

> Warm congratulations to you and all under your command on return to Singapore and successful achievement with four mac of a flight of 25,000 miles, which affords convincing proof of the ability and mobility of the flying-boat.

The Under Secretary of State's Cruise.

The Air Ministry states that the Under-Secretary of for Air, Sir Philip Sassoon, will leave England by ai Sept. 29, to visit the R.A.F. Stations in Malta, the Mi East, 'Iraq and India.

The route to be followed will be Plymouth, Marse Naples, Athens, Cairo (whence a visit will be made by to the Air Force Squadron at Khartum), Amman, Bagh Basrah, the Persian Gulf, Karachi.

The type of aircraft which will be employed for the gre part of the tour will be a Blackburn Iris flying-boat three Rolls-Royce Condor engines and manned by the no service crew. This is the latest type of large flying-boa be adopted by the R.A.F. and it is desired to obtain ex ence of its capabilities on an extended cruise under var climatic conditions.

The Under-Secretary of State will spend nine days in I and will visit by air the Squadrons in that country. will leave Karachi on Oct. 24 for England in the Iris whic due at Plymouth on November 6.

On the return journey a visit will be made to Malta w will be reached via Abukir and Benghasi.

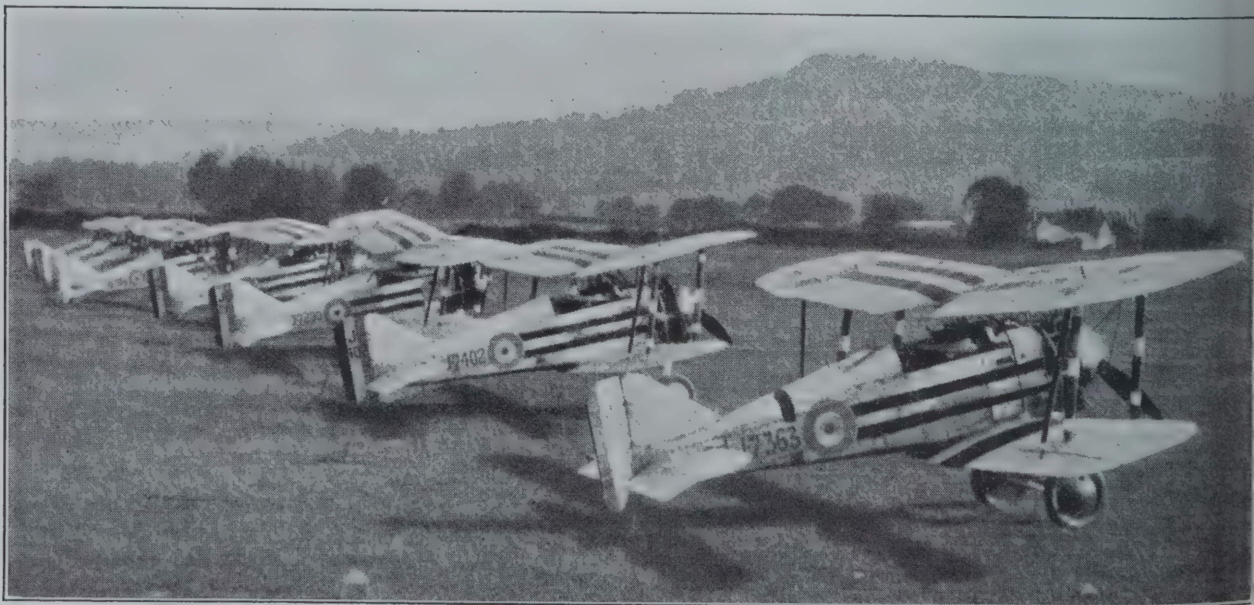
The World's Speed Record.

The first trial of the Supermarine S.5 (Napier Lion eng in which Flt. Lt. D. D'A. A. Greig, R.A.F., will make attempt on the World's speed record, was made on Sept when Flt. Lt. Greig spent 15 minutes taxying the mac about in the Solent off Calshot. The sea was not sm enough for a trial flight to be made.

The Air Ministry, in issuing passes to Press represe tives to visit the R.A.F. Station at Calshot to watch trials and the attempt on the record, made the follow condition:—

> The pass is issued on the distinct understanding that your repres tive will refrain from interviewing or speaking to Flt. Lt. as it is desired that he should not be harassed during his preparat Arrangements have been made for all available information t obtained from the Officer Commanding the Base or from the hea the Press Section who will be present at Calshot.

This order will perhaps act as a deterrent to those P representatives who are unable to realise that a Service is neither a professional jockey nor a film star.



THE RETURN OF THE CHILDREN.—The Gloster Grebes of No. 25 (Fighter) Squadron lined up at Brockworth Aerodrome during the Squadron's visit to the Gloster Aircraft Company's Works at Cheltenham.

MOTH

JCCESS *in* AMERICA

DH
MOTH

At the Air Meeting just held at Los Angeles, California, Mr. J. Carberry, in his own privately owned MOTH (Cirrus engine) won FIRST PRIZE in the Speed and Efficiency Contest for light aeroplanes

In the International Air Race from Windsor, Ontario, to Los Angeles, California, a distance of 2,200 miles, a MOTH privately owned by a member of the Hamilton Aero Club gained second place in a big field. The winning machine was fitted with an engine of double the capacity of that of the Moth

The many successes of the Moth in International Competition continue to maintain its reputation as "The Best Light Aeroplane in the World"

PRICE
£650
READY TO FLY AWAY

ll particulars of the Gipsy Moth write :

HAVILLAND AIRCRAFT CO., LTD.
ag Lane Aerodrome, Edgware, Middlesex.
ams : Havilland, 'Phone, Colindale.
Telephone : Colindale 6160—6163

E HAVILLAND AIRCRAFT OF CANADA LTD.
Federal Buildings, 85 Richmond Street West, Toronto 2, Canada.
Telegrams; Moth, Toronto.

HAVILLAND AIRCRAFT PTY. LTD.
iteman Street, South Melbourne, Australia.
Telegrams : Moth, Melbourne.

MOTH

Streets

— THE MACHINE THAT IS TEACHING THE WORLD TO FLY

A Fatal Accident.

The Air Ministry regrets to announce that as the result of an accident at Eastchurch to a Siskin machine of the Armament and Gurnery School, Eastchurch, on Sept. 19, Flg. Off. Athal Patrick de Woulf de Wytt, the pilot and sole occupant of the aircraft, was killed.

Offficers' Leave Regulations.

Air Ministry Orders state as regards officers arriving home on or after Oct. 1, 1930, on posting to home establishment, the existing leave rules will be modified in the following respects :—

(i) The maximum amount of accumulated leave which may be taken after return to home establishment will be 91 days irrespective of the length of the tour of overseas duty.

(ii) The voyage period will not be deducted from the balance of accumulated leave due after return to home establishment.

(iii) It will not be a condition of the grant of accumulated leave after return to home establishment that the officer's relief should not be posted until the officer's leave has expired.

The existing rules will not be substantially modified in other respects, and the maximum amounts of leave which may be granted and the maximum amounts which may be accumulated will not be altered.

The substantive regulations to give effect to this decision will be issued in the forthcoming edition of K.R. and A.C.I.

The question of making a parallel change in the leave rules for officers serving in India is under consideration.

Long Service and Cood Conduct Medals.

The Long Service and Good Conduct Medal has been awarded to the following airmen with effect from the date following each name :—

S-M. Butt, W. H. (18.5.28); S-M.1. Parker, F. T. (1.3.28); S-M.1. Baker, G. (13.6.28); S-M.2. Bowdidge, J. S., D.C.M. (13.11.27); S-M.2. Butcher, C. K. (25.4.28); S-M2. Crane, H. J. (3.6.28); S-M.2. Kendrick, H. T. (30.5.28); S-M.2. Kent, G. A. (20.9.27); S-M.2. Lindsell, C. E. (21.6.28); F-S. Easterbrook, A. E., A.F.M. (1.5.27); F-S. Ford, H. A. (11.7.28); F-S. Garner, R. H. (10.2.28); F-S. Growcott, E. (4.3.28); F-S. Martin, H. G. (25.3.25); F-S. Moore, J. H. (15.3.28); F-S. Nash, C. (14.3.28); F-S. Rayner, W. A. (28.6.28); F-S. Size, A. (7.7.28); Sjt. (A/F-S.) Hartwell, F. G. (25.12.24); Sjt. Beckett, W. B. (20.8.27); Sjt. Bishop, A. A. (7.5.28); Sjt. Chandler, T. W. (28.2.28); Cpl. (A/Sjt.) Alexander, G. (13.9.27); Cpl. Cooper, H., M.M. (18.11.26); Cpl. Hole, E. (29.3.28); AC.1. McQuarrie, C. (4.10.26).

Wing Commander Nanson.

Wing Cdr. E. R. C. Nanson, D.S.C., A.F.C., whose appointment to command the R.A.F. Base at Calshot is dated Sept. 1, 1928, was born at Carlisle in 1883 and educated at Hawkshead Grammar School and in H.M.S. *Conway*. He entered the Royal Navy in 1899 and was transferred to the Royal Naval Reserve in 1906. He learned to fly on a Maurice Farman biplane at Upavon and his Royal Aero Club certificate No. 651 is dated Oct. 15, 1913. In January, 1914, he was appointed to the Royal Flying Corps (Naval Wing) with the rank of Lieutenant, R.N., and served at Felixstowe Air Station. He was appointed Flight Lieutenant, R.N.A.S., in July, 1914, and Flight Commander in May, 1915.

He served with the R.N.A.S. in France from December, 1914, to May, 1915. In February, 1916, he went to East Africa with the acting rank of Squadron Commande remained there until March, 1917. He was awarded t tinguished Service Cross in recognition of his servic the East African Military Forces. The *London Gaz* June 15, 1917, states :—

> He organised his Unit with great efficiency and zeal and out reconnaissance work under great climatic difficulties.

He was appointed temporary Lieutenant-Colonel, in August, 1918, and Group Commander and acting in October, 1918. In the New Year Honours of 1919 awarded the Air Force Cross in recognition of disting services. In August, 1919, his name was removed fr Navy List on appointment to a permanent commis the R.A F. with the rank of Squadron Leader.

In January, 1921, he was promoted to Wing Com and was appointed to command No. 4 Flying T School, Abu-Sueir, Egypt, the following May. In Apri he was appointed Inspector of Recruiting, R.A.F., September, 1926, he was posted to 'Iraq. After a Station Headquarters, Hinaidi, he was posted to Ba command the R.A.F. Base and Stores Depot.

THE FRENCH AIR MINISTRY.

Following the recent decision by the French Gove to institute a separate Ministry to control all aero activities, M. Laurent Eynac was appointed Air Mini or about Sept. 14, and prepared a plan for the orga of the new department, which was submitted to a meeting on Sept. 20.

This scheme is said to provide for the cession to t Ministry of powers at present exercised by the Min War and the Ministry of Marine in connection w Army and Naval flying services, and it has aroused v opposition from the two Ministers concerned. The ferences are so acute that M. Laurent Eynac is repo have threatened to resign his new position.

No accurate details of M. Eynac's proposals hav issued, but Press reports state that they provide control by the new Ministry not only of *matériel* but also of the *personnel* of the flying services—i words for a separate Air Force.

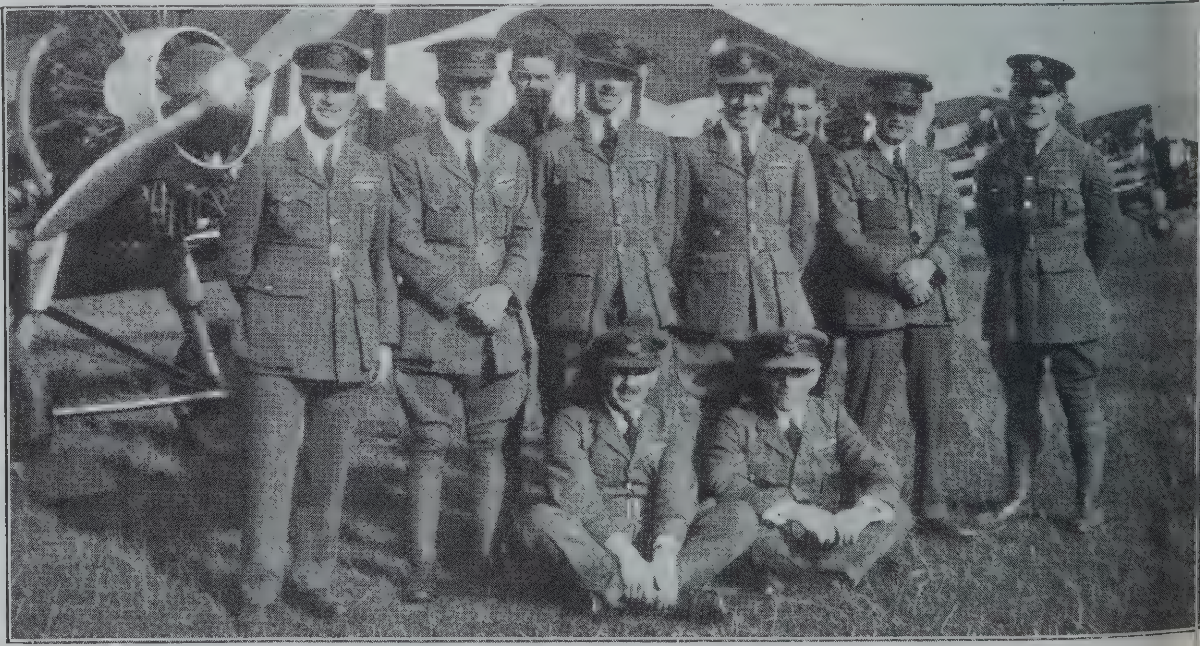
There seems little probability that so far-reaching a as this in the organisation of the French Air Arm made in the immediate future, and the general im is that the present difficulty will be overcome by control of *personnel* with the Army and the Na making the new Ministry solely responsible for supplies to both Services.

A CANADIAN DISAPPEARANCE.

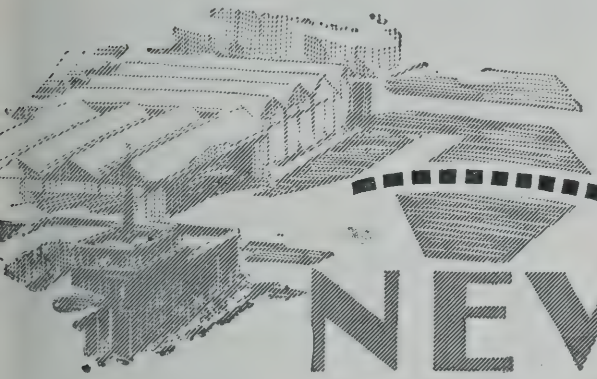
Sqn. Ldr. Godfrey of the Royal Canadian Air For recently made a flight single-handed across Canad Ottawa to Vancouver, began the return journey fro couver with three companions in a seaplane.

He left Peace River, Northern Alberta, on Sept. was missing for a week.

On Sept. 24 a report from Montreal announced that Sq Godfrey and his three companions had been found. seaplane had been wrecked in the Peace River in smoke caused by forest fires, and Sq. Ldr. Godfr suffered a broken leg. His three companions were un



A GLOSTER PARTY.—The pilots of No. 25 (Fighter) Squadron, R.A.F., at Brockworth, on Sept. 4.



NEW AIR RECORD

CROYDON TO BRUSSELS,
200 MILES IN 78 MINUTES

on SHELL PETROL

ON September 6th, Captain Scholefield flew from Croydon to Brussels—a distance of 200 miles—in 78 minutes, thus setting up a new air record for the journey.

The flight was made in a Vickers-Vivid airplane fitted with a Napier XI engine.

Shell Spirit was the fuel chosen by Captain Scholefield for his record - breaking performance. This Spirit has been, and is, the choice of the world's leading aviators—both for speed and unfailing reliability in all climatic conditions.

SHELL PETROL

THE END OF ORLY.

The French light aeroplane competition organised by the *Association Française Aérienne* terminated at Le Bourgêt on Sept. 21 with Herr Lusser on the Klemm monoplane (40 h.p. Salmson engine) as winner.

The competition opened on Sept. 9 at Orly and up to Sept. 12 the competitors were involved in a series of contests to determine the various qualities of the machines in the way of performance, consumption, load-carrying qualities, etc. These have already been described in THE AEROPLANE but it may be of interest to analyse the qualities of the competitors who survived these tests before describing the progress of the *Tour de France* which began on Sept. 14 and ended on Sept. 21 with the result mentioned above.

No 9 Klemm (40 h.p. Salmson) pilot : Herr Lusser.

Anti-fire protection	20 pts.	Protection against turning over	5 pts.
Taking down and assembling (17 mins. 33 secs.)	15 pts.	Unsticking (112.5 m.)	34 pts.
Starting engine (3 mins. 22 secs.)	10 pts.	Climb to 1,500 m. (13 mins. 30 secs.)	100 pts.
Dual control	10 pts.	Efficiency	1,077 pts.
			1,271 pts.

No. 20 D.H. Moth (85 h.p. Gipsy) pilot : H. S. Broad.

Accommodation for passenger	15 pts.	Dual control	10 pts.
Parachute	5 pts.	Comfort	5 pts.
Anti-fire protection	20 pts.	Unsticking (106 m.)	36 pts.
Taking down and assembling (8 mins. 8 secs.)	15 pts.	Climb to 1,500 m. (8 mins. 50 secs.)	128 pts.
		Efficiency	927 pts.
			1,161 pts.

No. 18 Avro Avian (85 h.p. Cirrus III) pilot : E. W. Percival.

Accommodation for passenger	15 pts.	Protection against turning over	5 pts.
Parachute	10 pts.	Unsticking (139.5 m.)	28 pts.
Anti-fire protection	20 pts.	Climb to 1,500 m. (10 mins.)	120 pts.
Taking down and assembling (7 mins. 43 secs.)	15 pts.	Efficiency	898 pts.
Dual control	10 pts.		1,126 pts.

No. 25 Avro Avian (85 h.p. Cirrus III) pilot : Lady Heath.

Accommodation for passenger	15 pts.	Protection against turning over	5 pts.
Parachute	10 pts.	Comfort	5 pts.
Anti-fire protection	20 pts.	Unsticking (115 m.)	34 pts.
Taking down and assembling (2 mins. 13 secs.)	15 pts.	Climb to 1,500 m. (10 mins. 40 secs.)	116 pts.
Dual control	10 pts.	Efficiency	870 pts.
			1,100 pts.

No. 14 Albert (40 h.p. Salmson) pilot : Pierre Fisbach.

Parachute	5 pts.	Unsticking (116.5 m.)	33 pts.
Anti-fire protection	20 pts.	Climb to 1,500 m. (11 mins. 30 secs.)	112 pts.
Rigid wing covering	15 pts.	Efficiency	628 pts.
Taking down and assembling (26 mins. 41 secs.)	15 pts.		833 pts.
Protection against turning over	5 pts.		

No. 1 Caudron (40 h.p. Salmson) pilot : Maurice Finat.

Parachute	5 pts.	Unsticking (91 m.)	40 pts.
Anti-fire protection	20 pts.	Climb to 1,500 m. (29 mins. 50 secs.)	2 pts.
Starting engine (5 mins. 7 secs.)	10 pts.	Efficiency	727 pts.
Dual control	10 pts.		
			814 pts.

No. 4 Caudron (60 h.p. Salmson) pilot : M. Delmotte.

Accommodation for passenger	15 pts.	Unsticking (137.5 m.)	28 pts.
Parachute	10 pts.	Climb to 1,500 m. (21 mins. 30 secs.)	52 pts.
Anti-fire protection	20 pts.	Efficiency	575 pts.
Engine starter	10 pts.		
Dual control	10 pts.		720 pts.

No. 10 Guerchais (50 h.p. Anzani) pilot : Pierre Lemerre.

Accommodation for passenger	15 pts.	Comfort	5 pts.
Anti-fire protection	20 pts.	Unsticking (95 m.)	39 pts.
Rigid wing covering	15 pts.	Climb to 1,500 m. (19 mins. 20 secs.)	64 pts.
Protection against turning over	5 pts.	Efficiency	412 pts.
			575 pts.

No. 3 Caudron (60 h.p. Salmson) pilot : M. Massot.

Parachute	5 pts.	Unsticking (104 m.)	37 pts.
Anti-fire protection	20 pts.	Climb to 1,500 m. (16 mins. 30 secs.)	82 pts.
Taking down and assembling (6 mins. 45 secs.)	15 pts.	Efficiency	405 pts.
Starting engine (3 mins. 36 secs.)	10 pts.		574 pts.

The efficiency figure was arrived at by multiplying the useful load carried by the speed in km.p.h. over 8 laps of the circuit Orly-Buc-Orly and dividing the result by the total fuel consumption in kgs.

The fuel consumption was arrived at by weighing the whole machine fully equipped complete with pilot, fuel, load, etc., before and after covering the 312 km. course, the difference being the alleged fuel consumption.

The weighing apparatus consisted of three pre
meat scales on which the two wheels and the ta
rested, so that the results obtained could not possib
a consistently true figure for all competitors.

One believes that the Caudron team protested agai
method of weighing, but in any case Vanlaere force
during the test and was eliminated, and Delmot
Massot retired because they saw no chances of obta
good position in the final classification, so their prote
availed them nothing.

For taking down and assembling every competit
allowed 30 minutes and three assistants, so that e
was able to qualify for the full 15 points. Unfort
from the private owner's point of view this test was
useless. The Klemm and the Albert had to be ta
pieces, and in the case of the Albert, controls, petr
lines, etc., undone, a state of affairs that not even th
industrious English pilot, given unlimited time and
position to employ several skilled mechanics, would
pared to face if he had to put his machine away in
shed such as those used in this country. The merits
ing wings were completely ignored.

Five points were awarded for starting the engine
sans aide." One presumes that this was intended
reward for those competitors who could start their
from the cockpit by lever, handle or button and
those who at the last moment endangered their liv
reputations by juggling with string and india-rubber

The points awarded for *Protection contre capotag*
not so much given for those machines that could n
over as for those which had some protection for the
pants during and after turning over. As no ma
actually turned over during the contest it was not p
to dispute the awards of the judges.

Every competitor collected full marks for *Protection*
l'incendie. Whether tanks were in the fuselage or
centre-section the principal requirement apparently
fire-proof bulkhead, with which every self-respecting
plane is now equipped.

Only two machines were awarded points for rigid
covering—the Albert and Guerchais monoplanes.
rigid covering in small machines should be consid
merit one does not profess to know. When used
private owner or flying school plywood covering is
liable to be broken in forced landings, and in repa
damaged wing tips, etc., in the field it is very much
difficult to manipulate than fabric. Even if the oute
be undamaged after a bad landing it is always more c
ing to be able to open up the wing for inspection.
fabric this is a comparatively easy procedure, wherea
plywood its rigidity and difficulty of removal tends
mote faith in the unknown, an undesirable quality
good maintenance is essential.

All these preliminary tests concluded on Sept. 1
the following day was left blank to allow all competi
go over their machines in readiness for the start on S
of the Tour de France.

On Sept. 14, after the weighing of all aircraft once
to check the useful load carried, M. Rouyer on M.
Caudron monoplane No. 1, left Orly at 09.17 hrs. for
on the first stage of the tour. He was followed after
minutes by M. Lemerre, arrayed in a gent's straw h
canary gloves and accompanied by a mechanic,
Guerchais cabin monoplane. At 09.23 M. Fisbach,
own Albert monoplane, left, but owing to a head wi
the fear of running out of petrol, he landed at the Ca
Mailly to refuel. In landing he struck some short
and damaged his tail. This damage was quickly re
and he left again for Nancy, only to have his engine
down over and into a wood, with serious results
machine, but fortunately no ill-effects to the pilot.

Lady Heath and Mr. Percival left at 09.45 hours,
few minutes later Herr Lusser took off, only to land
diately after to attend to his map-case, which was not
tioning properly. This delayed him but a few minut

The last to depart was Mr. H. S. Broad, on the
Moth, who, in company with Mr. Tapper, who was
Lady Heath's private Moth with her spares and kit,
11.16 hours.

Lady Heath and Percival were the first to arrive at
at 12.09 hrs., the former landing first. They were fo
at 13.16 hrs. by Rouyer, on the only Caudron left
contest and by Lemerre on the Guerchais, at 13.19 h
Lusser on the Klemm and finally by Broad on the
Moth at 13.33 hrs.

All arrivals were given a hearty reception by the o
of the *Aéro Club de l'Est,* who were responsible f
organisation of the Nancy control, and by the person
the 21*me Régiment d'Aviation,* as well as by a larg

(Continued on page 551.)

AERONAUTICAL ENGINEERING
SUPPLEMENT TO "THE AEROPLANE"

AIRCRAFT NOISES.

By W. H. Sayers.

ıring recent weeks the correspondence and indeed other
mns of the daily Press have been largely filled with dis-
ions of the supposedly allied subjects of speed and noise.
. speed and noise are to be found in close association
ıost aeronautical undertakings, but those concerned with
g while they must hope for the mitigation of the noise
t—unlike the majority of recent writers of letters to the
s—equally hope for the development of still greater
d.

Noise and Speed.

ere is undoubtedly a connection between speed and
e. Noise produced by machinery in motion represents
useless dissipation of a certain amount of energy. In-
sing the speed of operation of a given mechanism
rally speaking increases the rate of this dissipation and
uces more noise. This connection fortunately is not so
ıate and essential as to justify abandoning efforts at
eased speeds because increased noise must result there-
.

ı the contrary efforts to suppress the dissipation of
gy in the form of noise may lead to improved efficiency
ıe mechanism, and so actively further the pursuit of
eased speed. Comparatively little energy however is re-
ed to produce a very great noise, and therefore active
ts for the suppression of noise are not often dictated by
desire for increasing efficiency, because other and more
ortant types of energy loss usually afford greater oppor-
ies of economy. The chief incentive to the suppression
ıoise is the discomfort which noise produces in its
ers.

good deal of rubbish has lately been published on the
ged ill-effects of noise on the human mechanism, and if
he pronouncements of the anti-speed and noise faction
justified the problem of producing a satisfactorily silent
plane might be considered nearly impossible. It is how-
suggested that relatively simple means are available for
greatly reducing the discomforts which are at present
ed by the noises made by aeroplanes and incidentally
ıany other mechanisms.

fore this problem can be attacked with much prospect of
ess it is desirable to consider how and why noise causes
omfort and distress, and whether and how noises of differ-
types vary in their capacity to produce these effects.

Aeroplane Noises Heard from Earth.

ere it may be as well to make it clear that so far very
serious attention has been given in this country to
cing the discomfort caused by aeroplane noises, though
r amount of work has been done in regard to measuring
analysing the nature of these noises and to considering
ible methods of making aeroplanes relatively inaudible.
work however has been directed rather to military ends
to any direct effort to abate an admitted nuisance.

r military purposes the noise emitted by an aeroplane
ds a warning of its approach, and permits of fairly
rate location of the said aeroplane even at night or when
ther reasons it may be invisible. Provided that the note
ted can be detected with certainty the nature of the
is of secondary importance. A machine which emitted
a note so high in pitch as to be inaudible to the un-
l ear, might be regarded as perfectly silent for all civil
oses, yet would remain amenable to acoustic methods of
ing and locating given detectors, which can be provided,
e range of sensitivity included that inaudible note.

e nature of the noise as distinct from its volume how-
has quite obviously an important effect on the degree of
yance or discomfort which it will cause in the human
ıers.

The Alleged Ill Effects of Noise.

the correspondence already mentioned reference has con-
ısly been made to the allegation—supported, it is
ıed, by high medical authorities—that any loud and long-
nued noise ultimately produces physical ill-effects on
ıearer thereof.

is admitted that persons habitually subjected to such
s become apparently unmindful thereof, but it is said that the apparent acclimatisation to noise is the result only of a continued process of subconscious adaptation to circumstances that needs an expenditure of nervous energy, causes nervous strain, and eventually produces physical distress or illness.

There is much evidence which goes to refute this allegation. There are few noises louder and more distressing in their nature to the unaccustomed hearer than those to be found in a boiler-shop. Yet many men work regularly in boiler-shops for years without signs of permanent ill-effects.

The most nervous of subjects may be found who will sleep soundly by the side of a busy railway line, yet suffer sleepless nights and their often devastating effects, in the event of a railway strike.

After a period of working eight hours per day in the noise of running plant which was so loud that conversation with those unaccustomed to the conditions was impossible, I found that I could sleep peacefully in that noise, but that the slightest unusual sound would arouse me instantly.

Even the lifting of the latch on a door 100 ft. away would wake me before the lifter of the latch could open the door. Even the click of an instrument needle as it swung against the stops at the end of the scale has awoken me in these same conditions.

Why Noise is Disturbing.

The disturbance caused to the hearer by any noise depends on that hearer's personal reaction to that particular noise. If the noise is familiar, and can be automatically referred by his mind to some known and non-perturbing cause, there is no disturbance of a harmful nature.

Any new and unknown noise is disturbing until it can be thus sub-consciously classified as unimportant. A noise that is expected, but unfamiliar, or familiar but at the moment unexpected, calls for a definite conscious effort at classification, and any such effort does involve some expenditure of nervous energy.

Whether the noise be familiar or unfamiliar, and whether the hearer's mind deals with it automatically or by conscious effort, there will be disturbance if it is classified as a noise which may not be disregarded. A clock striking and announcing to the hearer that he has unexpectedly little time in which to keep a vital appointment, or to catch a train, is undoubtedly a disturbing noise, and produces nervous strain on the part of the hearer and thus in some degree may be harmful in its effects.

When the noise cannot be related either by automatic or by conscious effort to some known cause, it will almost invariably cause annoyance. When it can definitely be related to an event or object which the hearer dislikes or fears, the annoyance becomes aggravated, and if frequent or long-continued, may lead to very serious results.

In the early days of railways any noise that could be ascribed to railway operation was the cause of intense irritation to all those—and they were many—who disliked and feared this novel method of transport. To-day the appalling noises often made by railways pass almost unnoticed, simply because—apart from a few abnormal beings—fear and aversion for railway trains has died out.

To-day the noise made by motor-cars and aeroplanes is the cause of intense irritation on the part of those who dislike or fear these modern forms of mechanical transport. By far the greater part of this irritation is the direct result of that dislike and fear rather than of any disturbing characteristic of the particular noise that provokes the irritation.

Why Moths Worry Elderly Gentlemen.

The gentleman who is so incensed by the passage of the harmless necessary Moth a couple of hundred feet above his house is probably moved mainly by the fear—it may be conscious or not—that one day one of the beastly things will fall on his roof, set his house on fire, and destroy him, his family and all his possessions. The degree of his irritation will not be sensibly changed by any alteration in the character and volume of the noise made by the passing aeroplane so long as that noise remains one which he can definitely ascribe to the object of his aversion.

Complete silencing of the machine would perhaps permit its passage to remain unnoticed, and would of course remove one of his ventilatable causes of complaint against aeroplanes, but it would not greatly assuage his annoyance at the sight of the passing though silent machine for so long as his fear of what its passage might presage remained active.

NOISE AND THE PASSENGER.

The annoyance and discomfort which the noises made by aeroplanes cause to passengers travelling by air arises from generally similar causes to those which affect the external hearer. The mitigation of this discomfort is however of much greater importance at the moment than is any direct effort to placate the fears or animosities of those on the ground.

The discomfort of the passenger keeps potential passengers on the ground. Abolish or greatly reduce that discomfort, and you will thereby encourage the use of air transport, make it more and more a commonplace method of travel, and one which arouses a steadily decreasing dislike and fear on the part of the ordinary man. As soon as fear and dislike of the aeroplane disappears as completely as fear and dislike of railway trains has vanished, such noises as the aeroplane may habitually make will be disregarded by the normal groundling as completely as railway noises are now.

Though as said already the annoyance caused to passengers arises from causes generally similar to those already considered, there are obviously differences of detail. Passengers may be assumed generally to have neither a hate nor a well-developed fear of aeroplanes in the majority of cases, or presumably they would not travel by them.

Yet I am fairly convinced that the main discomfort caused by noise to aircraft passengers is the result of fear or apprehension aroused in them by noises which neither their conscious nor their subconscious powers are able to refer to known and reassuring causes. On this view the main reason why aeroplane noise has so unpleasant an effect on the passengers' comfort lies in the fact that it is often—or perhaps it should be said usually—an exceedingly irregular as well as an exceedingly loud noise.

Regular members of the crew of an aeroplane whose noises cause acute discomfort to passengers grow accustomed to these noises, are able to assign them automatically to normal causes, and do not mind them. Yet these same members of the crew transferred to another type of aeroplane making different, and therefore unfamiliar, noises, may suffer acute discomfort. In just the same way the habitual driver of an elderly and exceedingly noisy car has been known to complain bitterly of the, to him inexplicable and disconcerting, noises made by a car which in fact was far more silent than the one to which he is accustomed.

Incidentally it may be suggested that the records of the medical history of aeroplane pilots of long experience is one of the best proofs in existence that noise in itself—as apart from its effect in arousing apprehension—has no physical ill-effects on the human being.

THE IMPORTANCE OF THE ERRATIC NOISE.

If this view is correct the object to be aimed at in producing a comfortable aeroplane is not so much that of making it nearly silent as that of suppressing all noises of an erratic and rapidly varying type, leaving only such regular sounds as will rapidly become familiar to, and recognised as normal noises by, the passenger.

The noise of greatest volume heard in an aeroplane of the cabin type is largely that of the engine exhaust. Some authorities will hold that airscrew noises are louder than exhaust noises, but this is probably rather a matter of the sensitivity of the individual ear to different qualities of noise. It is difficult to see any hope of supressing either engine exhaust or airscrew noise except in some indefinite and probably far off future.

Neither of these noises is a regular musical note. Both of them has a predominant note which changes in pitch with engine r.p.m. Both of them are accompanied by an assortment of overtones or harmonics which render the quality of the main notes less pleasant than they might be to the sensitive ear. In general the pitch of the overtones of these two classes of noise change with engine speed. Some of them, and particularly some of those caused by the airscrew, may change abruptly and discontinuously with quite small variations in speed, but except with an airscrew of unusually bad noise characteristics, this discontinuous variation in note is not often very noticeable.

Added to these are noises made by parts of the engine mechanism—such as valves, gears and the like. These also change in pitch with engine speed.

These three classes of noise added together provide the major volume of the sound audible to the passenger. By themselves however they produce in the ordinary way a fairly steady roar which varies in pitch as a whole at a comparatively slow rate, though it may have in it a regular beat or pulsation.

To this relatively regular noise the normal healthy pass ger can fairly rapidly grow accustomed.

Superimposed on this roar however there is often a c fused jangling and clattering, relatively small in volume, exceedingly irregular in both volume and quality. As so as the ear and the mind have grown accustomed to the ma roar these irregular noises grow noticeable, and the hea is constantly disturbed by the effect which they produce o continual and erratic succession of new noises which se to him to demand some reassuring explanation. It is t automatic effort to find an acceptable explanation for a c tinuous series of apparently new noises that causes trouble.

Personal observations tend strongly to confirm this theo It has to be remembered that individuals do vary immens in their sensitivity and in their capacity to grow accustom to any given type of noise, and therefore that what may se a tolerable noise to one person may be insupportable to other, but it is believed that these differences are rather o of degree than of kind, and that the reduction of irregu noises of the type mentioned will reduce the discomforts all passengers, to a greater or less extent.

CASES IN POINT.

As concrete examples of the kind of improvement which is possible to secure in this respect the following account the characteristics of two differing types of passenger-carryi aircraft, and of the relative comfort—or otherwise—of trav ling in them, are interesting.

The first type is a thin-winged wire-braced biplane w twin water-cooled engines each of 450 h.p. driving trac screws mounted between the wings. With a full complem of passengers in the cabin conversation between those fai accustomed to aeroplane noises was so difficult that attem at it were abandoned.

At the end of two and a-half hours in this machine I h a bad headache, my ears were singing, and I felt tired out

From the cabin windows a watch was kept on such of t machine as could be seen. All the wires of the wing syst were seen to alternate at irregular intervals between a st of relative steadiness and one of vibration which made th nearly invisible. Some of the wing spars between strut joi and two interplane struts were behaving in a similar but l vigorous way.

Parts of the engine cowling would flap intermittently. T exhaust pipes dithered irregularly. One steel tube strut the port engine mount, loaded in the middle of its leng by a recording revolution meter, was almost continuous oscillating with varying amplitude. Its opposite numb waggled at intervals. Water and oil connections were son times still, sometimes far from it.

Fabric on the wings—mainly in the slip stream—flapp vigorously, and finally the cabin walls vibrated so much th touching them, particularly with the head, was acutely u comfortable.

All these moving objects were emitting noise, and no of the most irregular nature.

As against this may be set the case of a cantilever mon plane with a single air-cooled radial engine also of 450 h. of a famous Continental make. During the first few minut of a trip in this machine, I had the impression that t amount of noise was nearly as great as that in the previous mentioned case.

When therefore I heard quite clearly and comprehensib a question in French apparently addressed to me, I thoug momentarily that I was "hearing things." But it was hallucination. The passenger alongside me was asking if knew just where we were. I did and told him without di cultv and we continued to converse during the three hou of that trip without difficulty, in a language which I u conversationally on an average about twice a year. When alighted I had no headache, no singing in the ears, and w as least as fresh as I could have been after three hou drive in a comfortable car travelling over good roads.

NOISE AND MOTION.

From the windows of that machine the only movemen that could be discovered were those of the ailerons caus by the pilot's control thereof. Nothing could be seen dither, and there were no rattles or jangles of an irregul nature of any noticeable volume.

A subsequent trip in a machine of the same make, simil general construction, but having two of the same type engine mounted below the wing, showed the same absen of distressing or disturbing noise, together with the sa absence of vibrating or dithering parts. Particularly notic able was the apparent rock-like steadiness of the engi mounts, cowlings and connections as contrasted with the pe petual movement of similar components on the biplane afo mentioned.

These—and certain other similar experiences—leave convinced that the avoidance of irregularly vibrating co

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ponents, and of the irregular noises which they cause, will go very far to remove the discomfort so often felt by passengers, and that the suppression or reductions of the main volume of regular engine and airscrew sound is a matter relatively of secondary importance.

It is however difficult to see how this type of irregular vibration can be avoided with any certainty in the braced biplane, particularly when it is of large size and provided with engines mounted on the wings.

The prospects of keeping wires steady are not very great. Apart from wires there are a whole series of components, such as spar bays and struts, relatively short, light and flexible, all requiring relatively little to coax them into vibration, all of them having their own individual natural periodicities. There is thus provided in the structure a whole series of resonators, covering in the aggregate a large range of frequencies, together with a power plant which can provide a wide and varying range of oscillating impulses to set these resonators in motion.

Despite the flexible nature of the components, this structu is rigid so far as concerns its joints, and in general t bracing system provides a direct and nearly perfectly elas path for the transmission of all these engine impulses to eve major component of the structure.

As against this the cantilever monoplane provides a wi structure relatively homogeneous, with a low natural f quency of oscillation requiring considerable energy to initia in it motion of large amplitude, and serving rather provide a damper for the impulses caused by the pow plants than as a resonant amplifier of these impulses.

On these grounds, quite apart from any other of the re tive merits of the two types of construction, I am firmly co vinced that braced biplanes are not satisfactory commerc passenger carriers.

[*The foregoing article presents purely personal opinio and deductions, and not the editorial views of* The Aei plane *as such.*—C. G. G.]

NEW AEROPLANES.

The Nieuport Delage, Type 390.

Made by La Societe Nieuport-Astra, 48, Boulevard Astra, Issy les Moulineaux, Seine.

Type.—General utility commercial biplane.

Wings.—Single-bay braced biplane type. There is an upper central section, supported on four vertical struts, which are built into the forward section of the fuselage, and two lower stub wings built into the fuselage. Top and bottom wings on the same side are interchangeable and arranged so that strut and wire fittings may be applied to either side. Also interplane, streamline wires are of same size and length, and therefore interchangeable. The centre sections are on duralumin spars and the upper is sheet duralumin covered. Wings of moderately thick section, built on two spruce and three-ply box spars, with wooden girder ribs. Long ailerons of narrow chord (unbalanced) on all wings.

Fuselage.—Is in two detachable sections. The forward section has as integral parts of it the centre section struts and spars and is entirely duralumin framed. This section carries at the front an engine mount attached at four points and at the rear the fuselage proper, also attached at four points and readily removable. Interchangeable rear fuselage sections for varying purposes are made. All are of same general construction. Immediately following the metal centre section is a box, serving as cabin, etc., cased in three-ply and built on four longerons and shaped bulk heads of three-ply. The longerons are continued aft to the tail and are rigidly braced by spruce struts and fabric covered over this after section.

Undercarriage.—Normal cross-axle Vee type with rubber shock absorbers.

Tail Unit.—Normal monoplane type, unbalanced rudders and elevators. Elevators on a single through-going steel tube. Framing otherwise spruce.

Power Plant.—Practically any engine, air or water-cooled, of about 200 h.p. may be fitted, such as the 180 h.p. Hispano-Suiza, 190 h.p. Renault, 230 h.p. Salmson, 200 h.p. Lynx, etc. Nose radiators used with water-cooled engines. Fuel tank in top centre section (160 litres = 35 gallons).

Accommodation.—May be fitted with a two-seater cabin, a photographic compartment, or otherwise by modifying the detailed arrangement of the cabin. Pilot's cockpit below centre section, cabin with side entrance door directly behind wings.

Dimensions.—Span 10.60 m. (34 ft. 6 in.), Length 8.30 m. (27 ft. 2 in.), Height 3.54 m. (11 ft. 7 in.), Chord 2.045 m. (6 ft. 8 in.), Gap 2.0 m. (6 ft. 7 in.), Wing area 39 sq. m. (420 sq. ft.).

Weights and Loadings.—(With 180 h.p. Hispano-Suiza engine): Weight empty 958 kg. (2,009 lbs.), Fuel and oil 132 kg. (290 lbs.), Crew and pay load 310 kg. (682 lbs.), Normal loaded weight 1,400 kg. (3,020 lbs.), Maximum airworthy weight 1,500 kg. (3,300 lbs.), Wing loading 36 kg./sq. m. (7.2 lbs./sq. ft.), Power loading 7.78 kg./h.p. (16.8 lbs./h.p.).

Performance.—(Varies with engine): Maximum speed 160-165 km.h. (99-102 m.p.h.), Minimum speed 80-85 km.h. (50-53 m.p.h.), Climb to 3,500 m. (11,600 ft.) in 1 hour, Ceiling 4,000 m. (13,120 ft.).

The Nieuport Delage, Type 540.

Made by La Societe Nieuport-Astra, 48, Boulevard Astra, Issy les Moulineaux, Seine.

Type.—Long range passenger carrier.

Wing.—Tapered monoplane. Entirely of duralumin. Structure of each wing consists of a central box-girder with detachable leading and trailing edges. The two wings are attached by bolting the central girders to a centre section built into the fuselage frame. Ailerons of very narrow chord and great length are inset from wing-tips.

Body.—In detachable sections, entirely of duralumin. In front is a detachable engine mount. Behind this a cabin and centre-section unit. Each side of this is a deep box-girder with duralumin sides, sides are united by a double flooring skin and by the centre section structure. The rear section is a braced girder structure covered with thin sheet duralumin.

Undercarriage.—Split-axle type. One Vee is hinged to each lower edge of the central fuselage unit. A telescopic strut runs from the base of each Vee to the top of the fuselage. The telescopic contains an oleo-pneumatic shock-absorber.

Tail Unit.—Normal monoplane type without external bracing with unbalanced control surfaces. Duralumin framing covering.

Power Plant.—Engine mounts may be provided for any engine, or water-cooled, of 400 to 600 h.p. Droppable fuel tanks are carr in wings.

Accommodation.—Side-by-side dual control seats below leading ed Cabin 3.6 m. x 1.55 m. x 1.8 m. (11 ft. 10 in. x. 5 ft. 1 in. x 5 11 in.) below centre section with seats for 8 passengers. Bagga hold of 1.3 cub. metre (45 cub. ft.) below pilot's seat. A seco space of 0.67 cub. metre (23 cub. ft.) is in centre section anc third of about 1 cub. metre (35 cub. ft.) is provided aft the cab

Dimensions.—Span 23.40 m. (77 ft.), Length 15.0 m. (49 ft. 2 i Height 3.80 m. (12 ft. 6 in.), Wing area 60 sq. m. (645 sq. ft.).

Weights and Loadings.—(500 h.p. water-cooled engine): Weight em 1,880 kg. (4,136 lbs.), Equipment 108 kg. (238 lbs.), Fuel and 400 kg. (880 lbs.), Total disposable load (including crew) 1,620 (3,564 kg.), Loaded weight 3,500 kg. (7,700 lbs.), Normal pay l 800 kg. (1,760 lbs.), Wing loading 58.3 kg./sq. m. (11.9 lbs./sq. Power loading 7 kg./h.p. (15.4 lbs./h.p.).

Performance.—Maximum speed 199 km.h. (123 m.p.h.), Landing sp 95 km.h. (59 m.p.h.), Ceiling (absolute) 5,000 m. (16,400 ft.), Maxim range 1,200 km. (750 miles).

The Nieuport Delage, Type 640.

Made by La Societe Nieuport-Astra, 48, Boulevard Astra, Issy Moulineaux, Seine.

Type.—Mail or passenger-carrying commercial machine.

Wing.—Tapered cantilever monoplane, in one piece. Built on multiplicity of spruce stringers running from tip to tip, t together by a series of box ribs at 0.6 m. (2 ft.) centres and cove in three-ply. Four of the stringers are of extra heavy sect and carry fittings for attaching wing to body.

Fuselage.—Built in two detachable sections. The front section is doubled-walled three-ply box containing pilot's seat and cal To this the engine mount is fixed in front and the rear sect behind. This latter is covered by a single skin of three-ply.

Tail Unit.—Normal monoplane type, devoid of external bracing with unbalanced control surfaces. Spruce framed and three-covered. The tail-plane is adjustable in the air.

Undercarriage.—Split-axle type. Two Vees are hinged below centre line of fuselage and support the axles. A third strut each side runs in a sliding fitting on the side of the body. Rubb ring shock absorbers are fitted to this slide.

Power Plant.—Any air-cooled radial of 200-300 h.p. may be fitted providing a suitable engine mount. Two tanks, with jettis valves, are fitted in the wing. Oil tanks are carried on the eng mount.

Accommodation.—Enclosed cockpit with dual controls below lead edge of wing. Behind is a cabin 1.95 m. x 1.30 m. x 1.14 (6 ft. 5 in. x 4 ft. 4½ in. x 3 ft. 9 in.) partitioned from, but w door to, pilot's cockpit. Four seats are fitted. A door is provi on the port side. A baggage compartment of 1.3 cub. metres cub. ft.) with a separate door is provided aft the cabin. T compartment will at need take a stretcher and patient.

Dimensions.—Span 15.40 m. (50 ft. 7 in.), Length 9.45 m. (29 ft. 4 i Height 3.19 m. (10 ft. 6 in.), Wing area 30.9 sq. m. (334 sq.

Weights and Loadings.—Weight empty 1,050 kg. (2,310 lbs.), Fuel kg. (440 lbs.), Total disposable load 700 kg. (1,540 lbs.) (crew cluded), Loaded weight 1,750 kg. (3,850 lbs.), Wing loading kg./sq. m. (11.5 lbs./sq. ft.), Power loading (230 h.p.) 7.6 kg./l (16.7 lbs./h.p.).

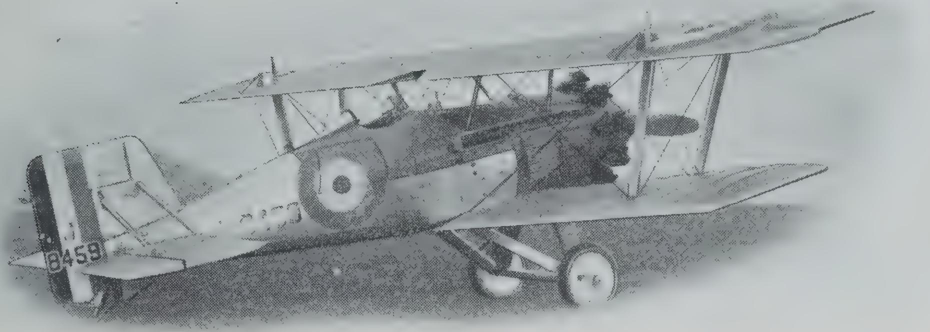
Performance.—(250 h.p. Lorraine-Dietrich radial): Maximum sp 205 km./h. (127 m.p.h.), Landing speed 88 km.h. (55 m.p.h.), Cli to 1,000 m. (3,280 ft.), 5½ mins., Ceiling 5,500 m. (18,080 ft.).

The Paulhan-Pillard Seaplane, Type E.5.

Made by La Societe Provencale de Constructions Aeronautique, 3, Montalivet, Paris.

Type.—Multi-engine civil flying-boat.

Wings.—Semi-cantilever high-wing monoplane. High tensile s



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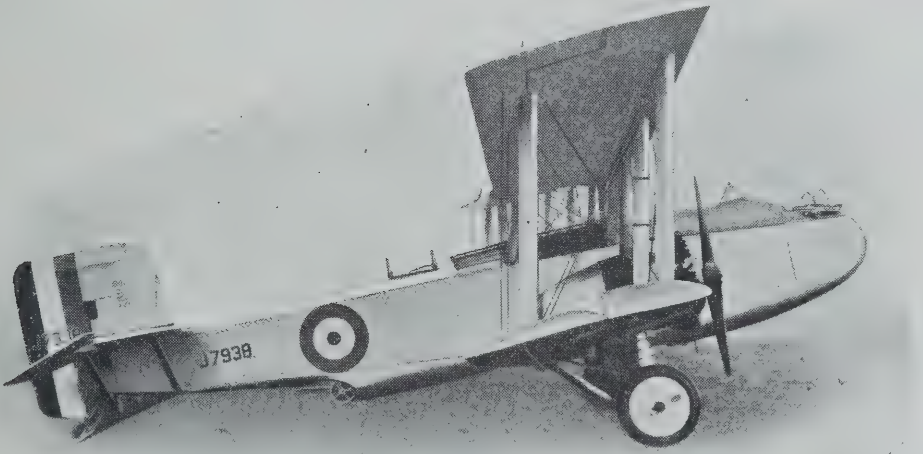

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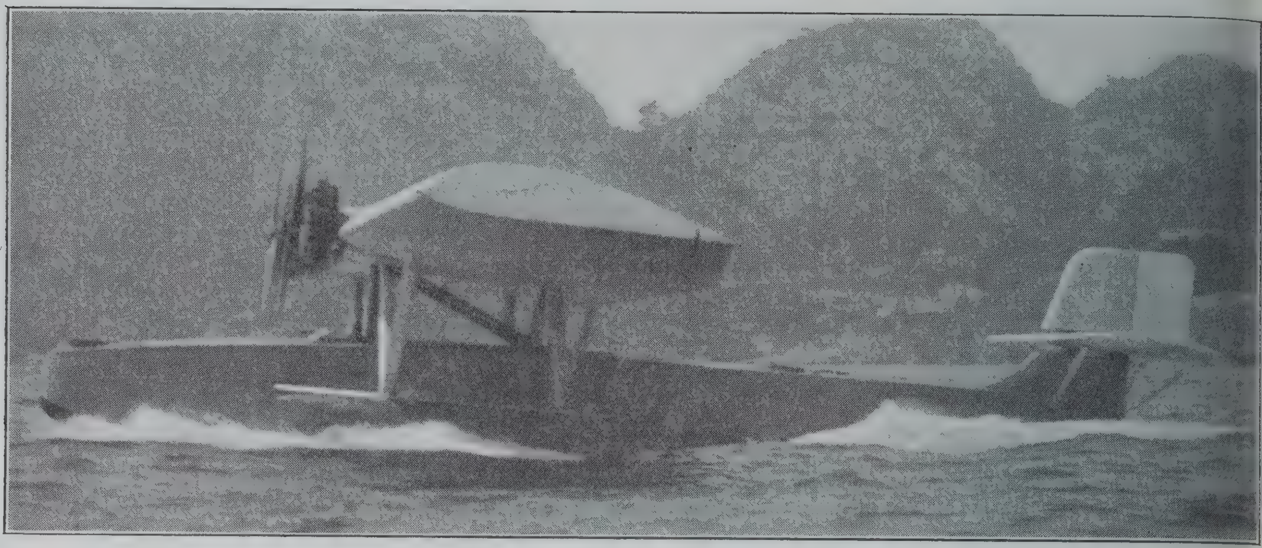


The Paulhan-Pillard Flying-boat Type E.5 (three Jupiter engines 420 h.p. each).

spars and duralumin ribs. The wings are supported above the central hull by vertical struts and by a triangulated system of tubular bracing connecting hull, two lateral floats and the wings.

Hull.—Entirely of duralumin, with slab sides and a very slight Vee bottom.

Tail Unit.—Normal monoplane type, with tail-plane carried above the hull on a fin built up integral with the hull. Control surfaces unbalanced.

Alighting Gear.—Consists of central hull and two large side floats carried fairly close in to central hull. These are tied to the main hull by horizontal, and to the wing centre section and outer sections by inclined struts. Auxiliary floats of duralumin. Struts of high tensile steel.

Power Plant.—Three direct-drive Jupiter engines (420 h.p. each) mounted on leading edge of wing, driving tractor airscrews. Fuel and oil tanks in wings. A passage way through the wing provides access to all power plant accessories. A starting engine (gas starter type presumably) is fitted in the hull and may be used to drive a generator for wireless, etc., purposes.

Accommodation.—Mooring, etc., cockpit in extreme bow of hull. Pilot's cockpit below leading edge of wing. The space between bow cockpit and pilot's cockpit, and behind pilot below wing, may be used to provide passenger or goods space. (From illustrations available the machine appears to have been built originally for naval reconnaissance and is provided with a gun position far aft along the hull.)

Dimensions.—Span 28.15 m. (92 ft. 6 in.), Length 18.70 m. (61 ft. 10 in.), Height 4.15 m. (13 ft. 7 in.), Wing area 140 sq. m. (1,510 sq. ft.).

Weights and Loadings.—Weight loaded 8,500 kg. (18,700 lbs.), Wing loading 60.7 kg./sq. m. (12.4 lbs./sq. ft.), Power loading 6.7 kg./h.p. (14.9 lbs./h.p.).

Performance.—Maximum speed 200 km.h. (124 m.p.h.), Climb to 2,500 m. (8,200 ft.) 16 mins., Range with 1,500 kg. (3,300 lbs.) pay load, 1,000 km. (620 miles).

The Paulhan-Pillard Seaplane, Type T3-BN.4.

Made by La Societe Provencale de Constructions Aeronautique, 3, Rue Montalivet, Paris.

Type.—Coastal defence bomb or torpedo carrying seaplane.

Wings.—Low wing cantilever monoplane. Metal construction generally similar to the Type E.5 of same make.

Fuselage.—Rectangular section, sheet-metal covered.

Alighting Gear.—Twin floats, of single step long type, with mar Vee bottoms and turtle-back decks carried from wing by two s of streamlined trousers and by diagonal struts up to fuselage.

Tail Unit.—Normal monoplane type. Control surfaces unbalanc

Power Plant.—Two geared Jupiter engines, 480 h.p. each, on lead edge of wing above floats.

Accommodation.—Gunner and bomber's position in a semi-circu pulpit-like projection from the nose of the fuselage. Open pil cockpit above leading edge of wing. Aft gun ring position m way between wing and tail.

Dimensions.—Span 27.45 m. (90 ft.), Length 17.10 m. (56 ft.), Hei 4.10 m. (13 ft. 6 in.), Wing area 123 sq. m. (1,325 sq. ft.).

Weights and Loadings.—Loaded weight 6,800 kg. (14,960 lbs.), W loading 55.2 kg./sq. m. (11.3 lbs./sq. ft.), Power loading 7.1 k h.p. (15.6 lbs./h.p.).

Pfrformance.—No data available.

The Raab-Katzenstein 9 Grasmücke.

Made by the Raab-Katzenstein-Werke G.m.b.H., Cassel. Sporting t seater.

Wings.—Cantilever biplane. Top wing greater span than botto Parallel chord both wings. One pair N interplane struts side. Horn-balanced ailerons on top only. Wooden frame.

Fuselage.—Rectangular section, welded steel tube frame.

Undercarriage.—Cross-axle Vee type, with axles hinged centrally cabane below fuselage. Rubber cord springing.

Tail Unit.—Normal monoplane type. Timber framed.

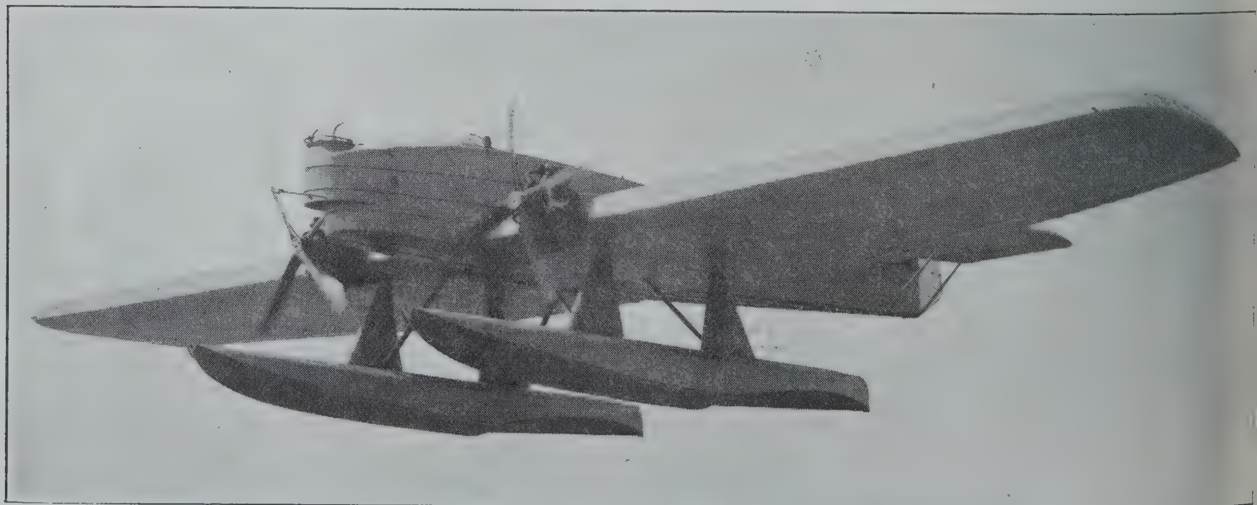
Power Plant.—Three-cylinder Anzani, 35 h.p. Petrol tank 42 lit (9 galls.) in top wing.

Accommodation.—Two open cockpits in tandem, one below and behind top wing.

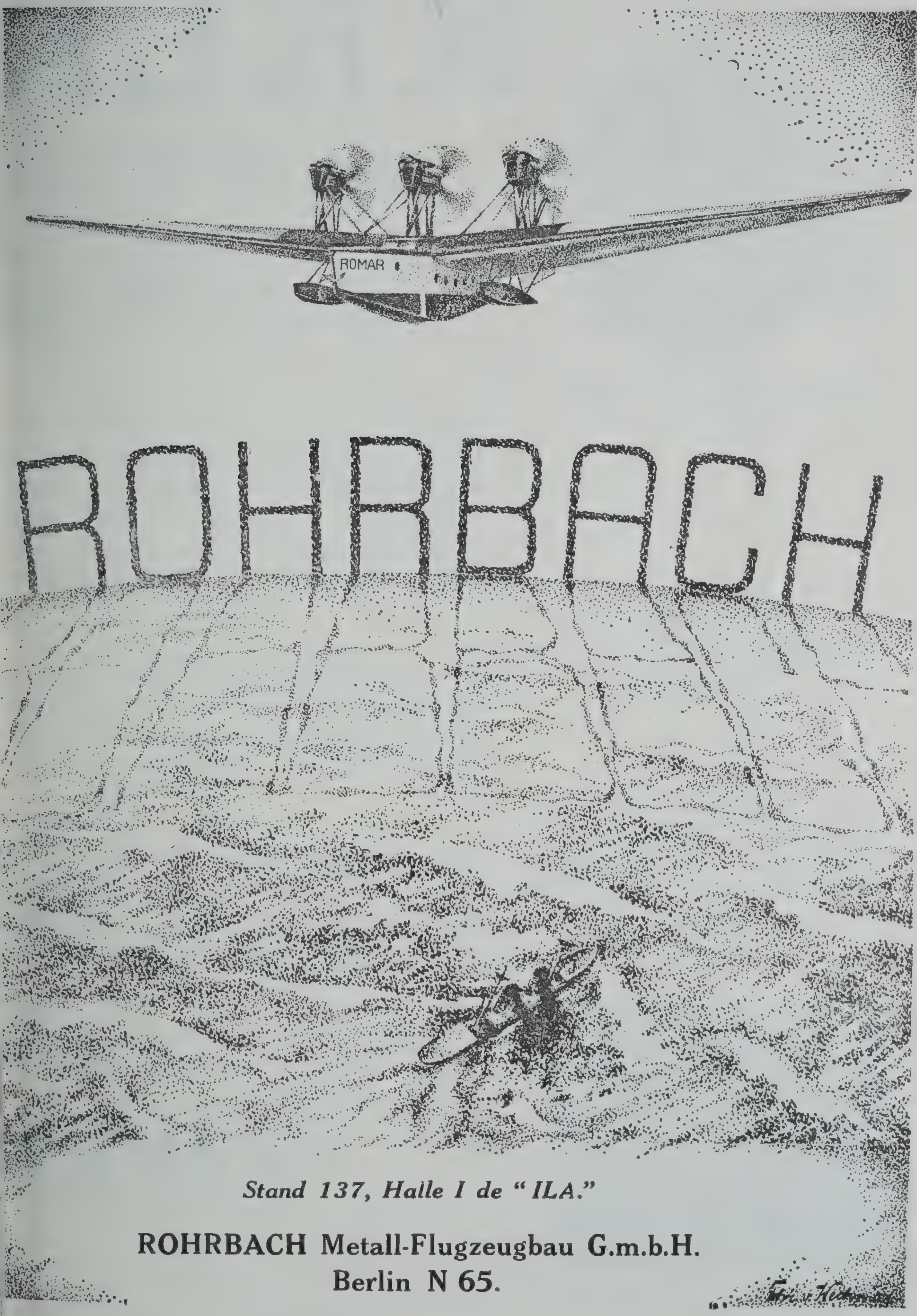
Dimensions.—Span (top) 8.96 m. (29 ft. 5 in.), (bottom), 8.06 (26 ft. 5 in.), Length 6.85 m. (22 ft. 6 in.), Height 2.3 m. (7 ft. 7 i Wing area 19.64 sq. m. (212 sq. ft.).

Weights and Loadings.—Weight empty 250 kg. (550 lbs.), F loaded 450 kg. (990 lbs.), Wing loading 22.9 kg./sq. m. (lbs./ sq. ft.), Power loading 12.8 kg./h.p. (28.2 lbs./h.p.).

Performance.—Maximum speed 110 km.h. (69 m.p.h.), Minimum sp 40 km.h. (25 m.p.h.), Climb to 1,000 m. (3,280 ft.) 13 mins., Ceil 3,600 m. (11,800 ft.).



The Paulhan-Pillard Seaplane Type T3-BN.4 (two geared Jupiter engines).



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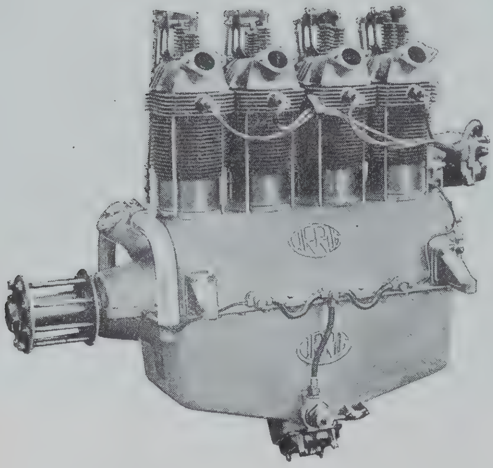

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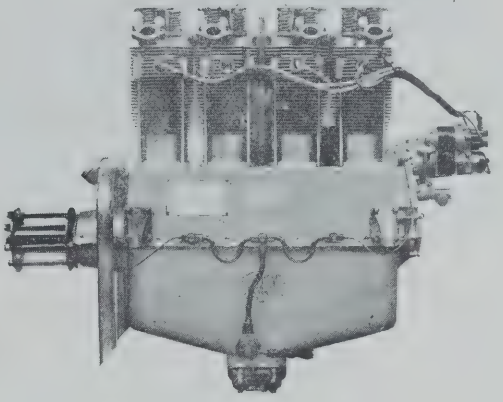

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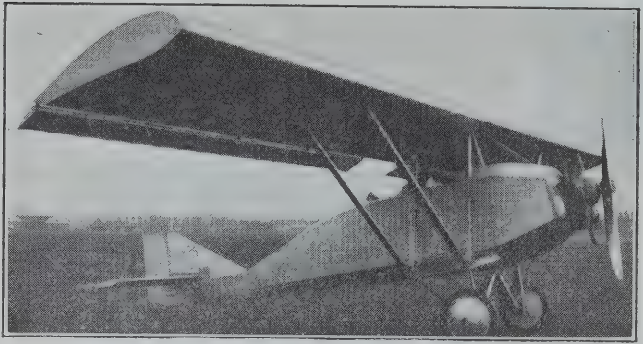
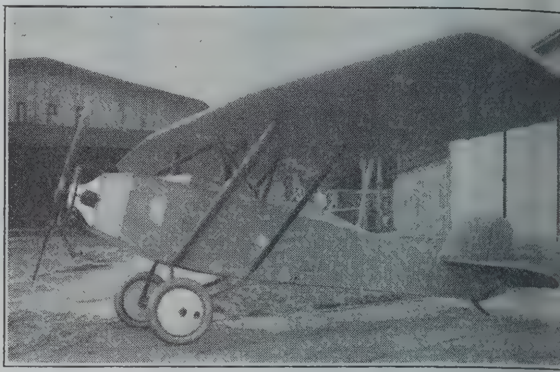
POLISH LIGHT AEROPLANES.


The Cywinski monoplane.


The Wigura and Rogalski monoplane.

The Medwecki monoplane.

Six light aeroplanes of Polish design and construction took part in a competition organised by the Council of the Aerial Defence League of Poland at the beginning of October, 1927. Two other Polish light aeroplanes were present at the meeting but did not compete.

All these machines were designed either by students or by amateurs. All flew, and none suffered accidents, though forced landings seem to have been frequent. Such information as is available concerning these machines follows.

Drzewiecki.—Designed by I. J. Drzewiecki, of the Warsaw Polytechnic School, and built in the school workshops. Tandem two-seater low-wing monoplane, strut braced. 45 h.p. Anzani engine Span 9.7 m. (31 ft. 9 in.), Length 5.95 m. (19 ft. 6 in.), Wing area 13.5 sq. m. (146 sq. ft.), Weight empty 330 kg. (726 lbs.), Weight loaded 427 kg. (940 lbs.), Speed over 190 km. course (118 m.) 116.5 km.h. (73 m.p.h.), Climb 2,200 m. (7,250 ft.) in 30 mins. (First prize.)

Cywinski.—Designed by Ing. S. Cywinski, built at Biala Podalski Aircraft Works. Tandem two-seater parasol monoplane, strut braced. 60 h.p. Walter engine. Span 9.7 m. (31 ft. 9in.), Length 6.9 m. (22 ft. 7 in), Wing area 15.3 sq. m. (164 sq. ft.), Weight empty 352 kg. (775 lbs.), Weight loaded 659 kg. (1,450 lbs.), Speed over 190 km. 122.5 km.h. (76 m.p.h.), Climb 1,700 m. (5,600 ft.) in 30 mins. (Second prize.)

Kozlowski.—Designed and built by W. Kozlowski, of Kalisz. Tandem two-seater, low-wing, cantilever monoplane. 45 h.p. Anzani engine. Span 9.3 m. (30 ft. 4 in.), Length 6.1 m. (20 ft. 0 in.), Wing area 14.2 sq. m. (154 sq. ft.), Weight empty 337 kg. (742 lbs.), Weight loaded 455 kg. (1,005 lbs.), Climb 1,900 m. (6,200 ft.) in 30 mins. (Third prize.)

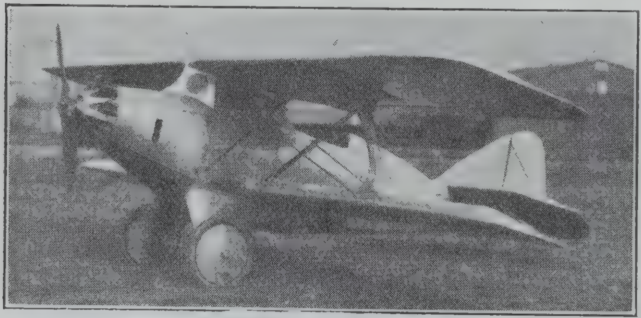
Wigura and Rogalski.—Designed by M.M. Wigura and Rogalski, of Warsaw Polytechnic College, built in college workshops. Tandem two-seater, parasol monoplane, strut braced with swept-back wings. 45 h.p. Anzani engine. Span 10.0 m. (32 ft. 9 in.), Length 5.95 m. (19 ft. 6 in.), Wing area 15.3 sq. m. (164 sq. ft.), Weight 352 kg. (775 lbs.), Weight loaded 547 kg. (1,204 lbs.).

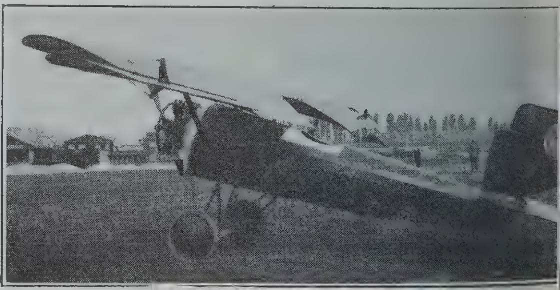
Skraby.—Designed by B. Skraby. Built by Warsaw Aircraft W Tandem two-seater, equal-winged, staggered biplane. "Spad"-like. 45 h.p. Anzani engine. Span 7.5 m. (24 ft. Length 5.3 m. (17 ft. 3 in.), Wing area 16.509 m. (176 sq. ft.), W empty 325 kg. (715 lbs.), Weight loaded 493 kg. (1,080 Climb 1,000 m. (3,280 ft.) in 30 mins.

Dzialowski.—Designed and built by M.M. S. and M. Dzialowski, and mechanic of the Polish Military air service at Cr Single-seater, parasol monoplane, strut braced. 45 h.p. A engine. Span 8.4 m. (27 ft. 6 in.), Length 5.5 m. (18 ft. Wing area 12 sq. m. (129 sq. ft.), Weight empty 293 kg. (645 Weight loaded 420 kg. (926 lbs.), Climb 2,000 m. in 30 mins.

Medwecki.—Built by Samolot Works, Poznan. Two-seater ta parasol, monoplane, strut braced. 35 h.p. Anzani engine. 11.0 m. (36 ft. 0 in.), Length 7.0 m. (23 ft. 0 in.), Wing are sq. m. (176 sq. ft.), Weight empty 291 kg. (642 lbs.), Weight l 365 kg. (782 lbs.). (Non-competitor.)

Zalewski.—Designed and built by M. W. Zalewski at his wor at Milanowek, near Warsaw. Single-seater, wire braced, mon with skid and wheel undercarriage. Like 1914 Deperduss appearance. Zalewski engine. No data available. competitor.)


The Skraby biplane.


The Dzialowski monoplane.

NEW AIRSHIP.

The Zeppelin LZ127.

Built by The Luftschiffbau Zeppelin G.m.b.H., Friedrichshafen. Designed for passenger and mail service on long distance routes. The ship was to be used on the route between Seville and the Argentine intended to be opened this year.

Hull.—Of streamline form, free from parallel section. Main frames are 28-sided polygons spaced 15.0 metres apart with two auxiliary frames between each main frame. Main frames are both wire braced in their own plane and king-post trussed. Both frame and longitudinal girders are of triangular section, but with circular section booms in place of the original Zeppelin open angle-section. The four bottom sides of each polygonal frame are reinforced by a keel framing system.

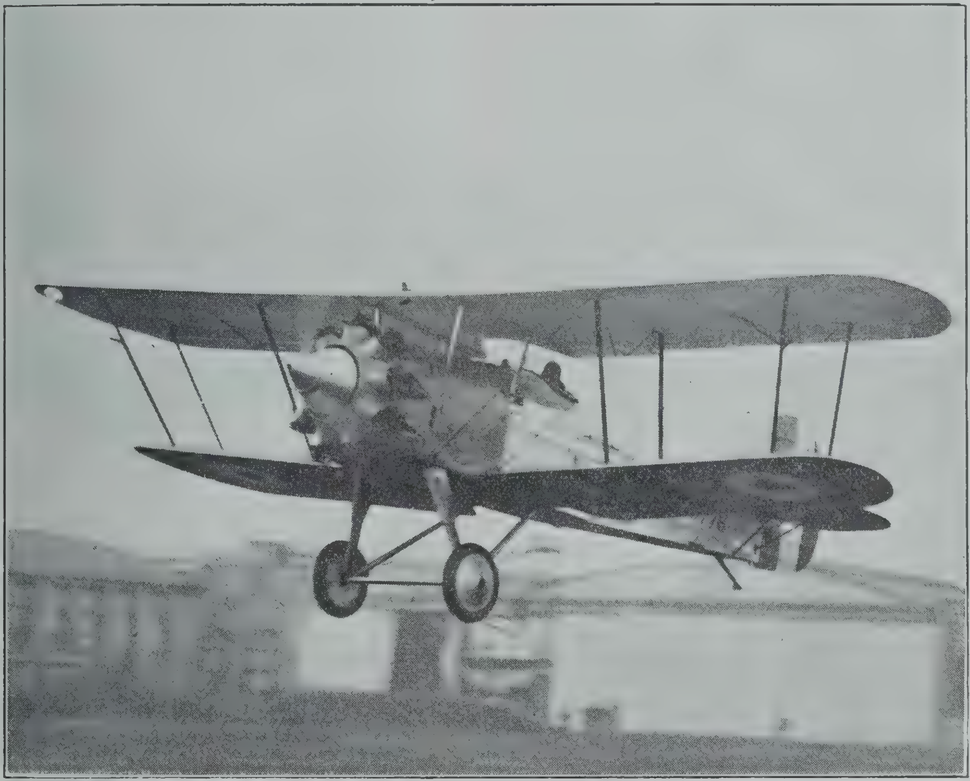
Power Plant.—Five Maybach engines, Type VL.2, each of 530 h.p., directly coupled to airscrews, are fitted each in a separate gondola. These are arranged in two pairs of two abreast, and one well aft on the centre line of the ship. The engines are arranged to run on both petrol and on a special gas fuel. Petrol is carried in a relatively small quantity and may be used as emergency ballast. The fuel gas—which is a hydro-carbon of approximately the same density as air—is carried in special gas-bags in the section of the ship's gas-space. As this fuel is consumed displaced by air and there is consequently little or no chan the gross weight of the ship, and therefore no need to val otherwise get rid of—hydrogen to maintain equilibrium.

Accommodation.—A front gondola, rigidly attached to the main framing, contains the navigating and control positions and a modation for passengers. The extreme nose of this gondol tains the control position. Behind this is the navigator's and a separate wireless compartment. Behind this is the senger saloon and dining room (5 m. square) and ten d berthed sleeping compartments. Accommodation for the cre provisions, goods, mail, etc., are provided inside the keel-fr of the hull.

Dimensions.—Length over all 235 m. (772 ft.), Maximum diame hull 30.5 m. (100 ft.), Maximum height over all 33.5 m. (11 Form ratio (length ÷ dia.) 7.7, Cubic capacity 105,000 cu (3,710,000 cub. ft.).

Load Capacity.—Gross lift 111,000 kg. (107 tons), Designed pay 15,000 kg. (15 tons), with crew of 26 and fuel for 10,000 km. miles) at 110 km.h. (68 m.p.h.), Maximum speed 128 km. m.p.h.).

HAWKER AIRCRAFT



"Aeroplane" Photograph.

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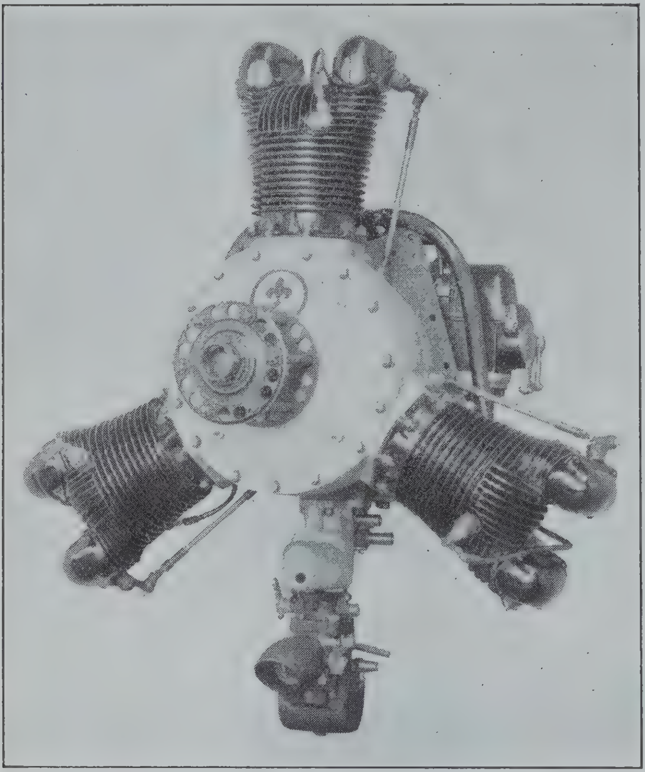
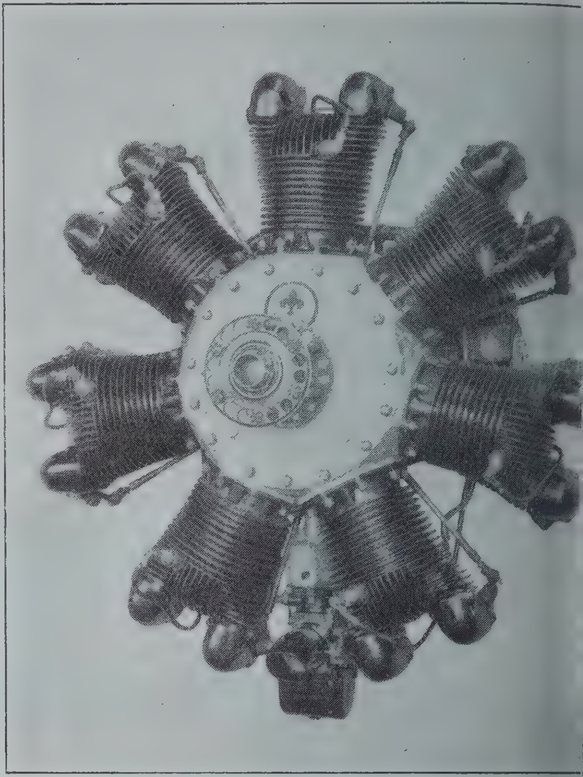


The Le Blond 40 h.p. engine.



The Le Blond 90 h.p. engine.

The Le Blond Engines.

Made by The Le Blond Aircraft Engine Co., Cincinatti, Ohio.

Type.—Three ("Forty"), and five ("Sixty") and seven ("Ninety") cylinder air-cooled radials for light civil aircraft.

Cylinders.—Bore 4⅛ in. (105 m/m.), Stroke 3¾ in. (95 m/m.). Nickel-iron castings with integral heads. Two inclined overhead valves per cylinder.

Pistons.—Aluminium alloy castings, with three rings above gudgeon pin. Gudgeon pin floats in piston and little end.

Connecting Rods.—Master rod has a split big end with white metal direct on steel. Wrist pins locked in big ends. Both ends of auxiliary rods bronze-bushed. All rods H section.

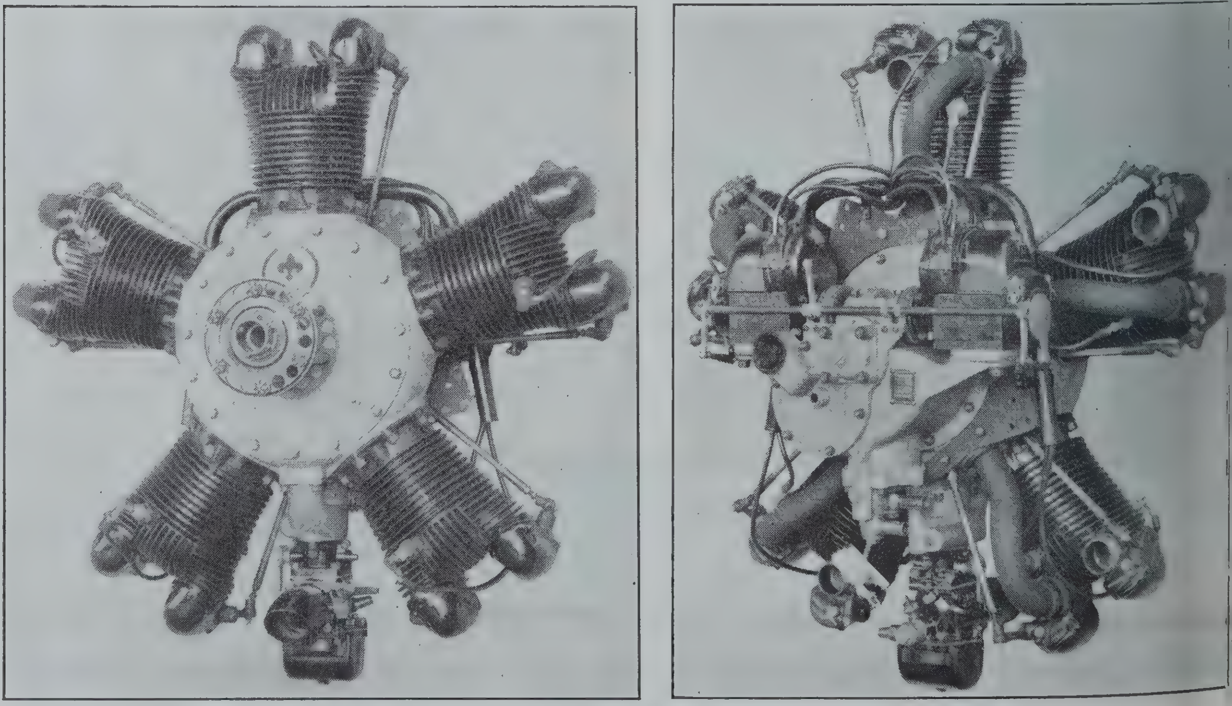
Crankshaft.—Single-throw one-piece type, very short and stiff, with bronze counterbalance weights. Runs on two ball bearings, the front one serving as both journal and thrust bearing.

Crankcase.—Barrel type aluminium alloy casting with a transverse bulkhead which supports rear crankshaft bearing, and partitions off auxiliary gear chamber. This bulkhead forms front wall of an annular induction chamber.

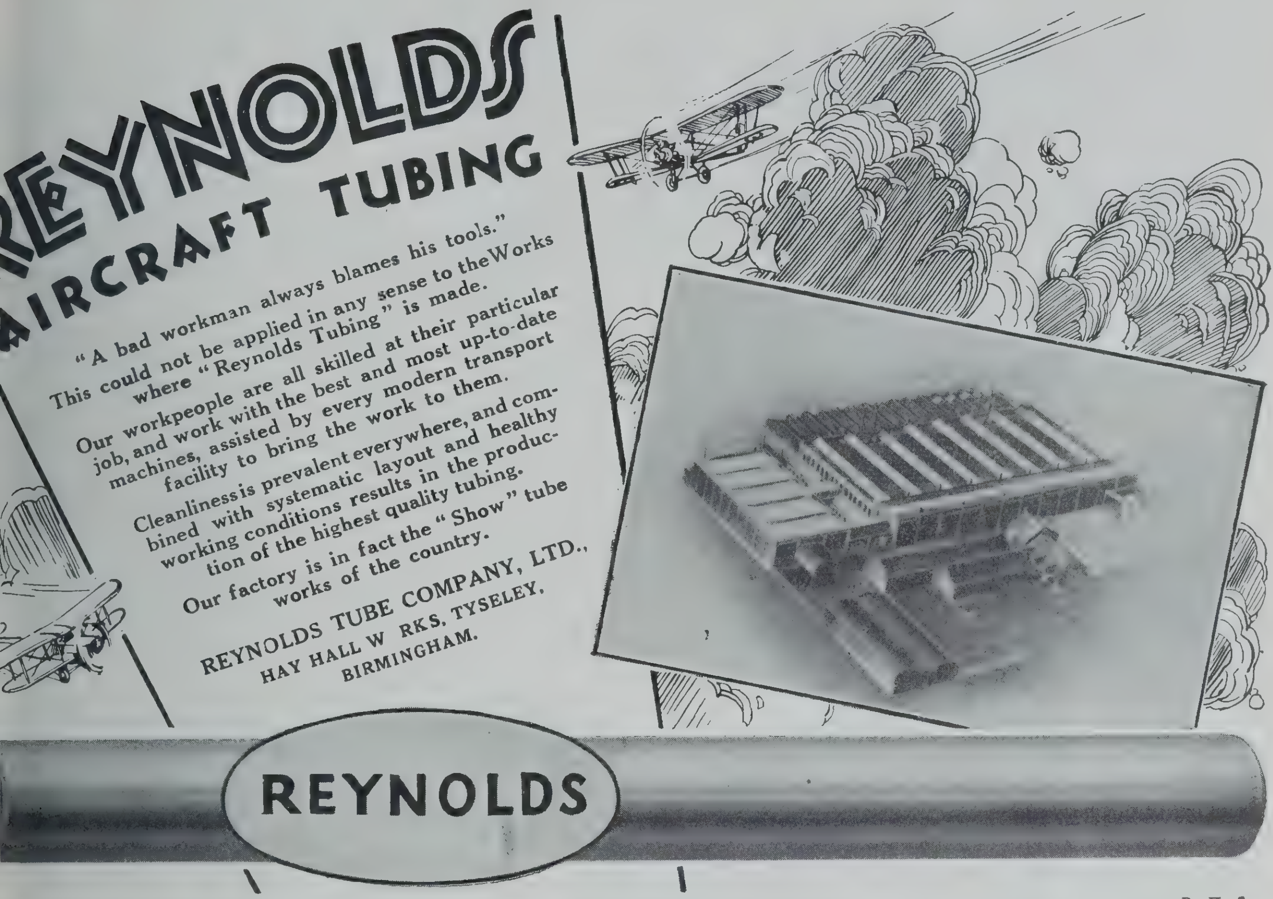
Valve Gear.—Cam gear drive shaft floats in end of crankshaft
driven by two keys which can only be inserted in
timing position. This shaft is supported in a plain beari
the rear cover of the crankcase, and passes into a gear-box
rear of that cover. A spur gear drives a lay-shaft, which
back through the cover and drives a single-row cam-disk
runs on the primary drive shaft in bronze bushings. Two
at one-fourth engine speed are used on the three cylinder,
cams at one-sixth engine speed on the five cylinder, an
cams at one-eighth engine speed on the seven cylinder
Cast-iron tappet-rod guides passed into the rear compartm
the crankcase carry roller tappet rods and the valves are op
through push rods and rocker arms. Valve springs and
bearings are enclosed.

Carburation.—One Zenith concentric float carburetter, with a
control supplies gas to the induction chamber through a
jacketted passage. Mixture is led through radial pipes to
valves.

Ignition.—Two Scintilla magnetos, one on each side of rear



Two views of the Le Blond 60 h.p. engine.



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case cover, driven by a transverse lay-shaft above crankshaft centre.

Lubrication.—Normal dry-sump type. A duplex gear-type pump, removable as a unit, is carried below gearcase at rear of engine.

Dimensions.—Overall diameter, all models, 32¾ in. (0.832 m.), Overall lengths "Forty" (3-cylinder) 21.94 in. (0.556 m.), "Sixty" (5-cylinder) 21.56 in. (0.547 m.), "Ninety" (7-cylinder) 22.25 in. (0.565 m.).

Weights and Outputs.—"Forty" (3-cylinder) 40 h.p. at 1,900 r.p.m. for 168 lbs. (75.6 kg.), "Sixty" (5-cylinder) 60 h.p. at 1,800 r.p.m. for 210 lbs. (96 kg.), "Ninety" (7-cylinder) 90 h.p. at 1,850 r.p.m. for 250 lbs. (114 kg.).

Fuel Consumption.—All models 0.55 lbs. (0.25 kg.) per h.p. hour at rated output.

The Warner Scarab.

Made by The Warner Aircraft Corpn., Detroit, Mich., U.S.A.

Type.—Five-cylinder air-cooled radial for light civil aircraft.

Cylinders.—4¼ in. (108 m/m.) Bore, 4¼ in. (108 m/m.) Stroke, 5.2 Compression. Steel sleeves (open-ended) with bolted-on aluminium heads. Two inclined overhead valves with ports facing sideways.

Pistons.—Die-cast aluminium alloy.

Connecting Rods.—Master rod with split big end. Wrist pins fi in auxiliary rods and floating in master rod flanges.

Crankshaft.—Single-throw single-piece type.

Crankcase.—Split on cylinder centre line. Front cover integral w front casting, and an annular induction chamber is integral w the rear casting. All accessory drives in rear of crankcase.

Valve Gear.—Two four-lobe cam rings epicyclically driven at ⅛-eng speed. Valves operated by push rods and overhead rockers— totally enclosed.

Carburation.—One Stromberg NAS5A carburettor exhaust-heated low rear of crankcase supplies induction chamber and thence i valves via radial induction pipes.

Ignition.—Two Scintilla magnetos, mounted askew on rear of cra case, supply two plugs fore and aft on each cylinder.

Lubrication.—Normal dry-sump system. No data as to pump arran ment.

Auxiliary Gear.—No details available.

Dimensions.—Overall diameter 35½ in. (0.90 m.), Overall length in. (0.698 m.), Diameter of mounting circle 17 in. (0.432 m.).

Weight.—270 lbs. (125 kg.).

Performance.—Normal output 110 h.p. at 1,850 r.p.m. Fuel consu tion 9.3 U.S. = 7.75 Imp. gallons (35 litres) per hour.

NEW TECHNICAL LITERATURE.

The Aeronautical Research Committee.*

Reports and Memoranda No. 1114.—"*Chart for the Calculation of Airscrew Thrust and Torque Coefficients.*" *By J. D. Coales, D.Sc. Price 6d. net.*

This report gives a series of charts which provide graphical means of solving the equations needed for the computation of airscrew characteristics. The theoretical basis of the charts and methods of using them are explained.

R. & M. No. 1115.—"*The Importance of 'Stream-lining' in Relation to Performance.*" *By Prof. B. M. Jones, M.A., A.F.C. Price 9d. net.*

A very general consideration of the way in which power is dissipated during the flight of an aeroplane leads to the conclusion that if power were expended only in climbing, overcoming induced drag and skin friction considerably less horse-power than is actually required would be necessary for a given performance. The extra power actually required must be dissipated as a result of turbulent or non-streamline flow.

An elementary analysis shows that if these turbulence losses were avoided aircraft could fly at their present speeds with between one-third and one-half the present horse-power, or reach from 1.7 to 1.2 times their actual speed with the same power and that correspondingly improved results in climb could be attained.

The author suggests certain specific lines of experiment as a possible method of discovering means of avoiding the present large turbulence losses.

R. & M. No. 1119.—"*Model Experiments with Rear Slots and Flaps on Aerofoils R.A.F.31 and R.A.F.26.*" *By H. B. Irving, B.Sc., A. S. Batson, B.Sc., and A. L. Maidens. Price 6d. net.*

Provides data as to lift coefficients obtained on these aerofoils with front and rear slots and flaps for various flap positions, including the effects of varying the position of the nose of the rear flap.

R. & M. No. 1120.—"*Analysis of Experiments on an Airscrew in Various Positions within the Nose of a Tractor Body.*" *By C. H. N. Lock, M.A. Price 1s. net.*

A mathematical analysis of the experiments already reported (R. & M. No. 1030) on the performance of an airscrew in various positions on a tractor body. (The boss of the screw was enclosed in a spinner which conformed to the body lines and by changing the spinner both the form of body and the relative distance of airscrew from nose were changed.) The analysis is directed toward separating out the effect on the airscrew performance caused by the presence of the body, the effect of increased body drag caused by slipstream, and the effect of the airscrew in "spoiling" the flow past the body and setting up turbulence. It is concluded that the first effect is small, the second is calculable with reasonable accuracy by a formula suggested, and that the turbulence effect may vary within fairly wide limits, but does not account for more than a very small proportion of the total drag of a normal machine and can be estimated with sufficient accuracy for practical purposes.

R. & M. No. 1121.—"*The Experimental Determination of the Trajectory of Aircraft Bombs.*" *By H. E. Wimperis, C.B.E., M.A. Price 1s. 6d. net.*

An account of the work carried out during the War to provide such data concerning the path of a bomb dropped from an aeroplane as was necessary for accurate bomb-sighting. An approximate method of solving the equations of motion for the path of a particle whose resistance varies as the square of velocity was devised and is given in the report. It was then necessary to discover if a real bomb behaved sufficiently like a particle for this solution to be applicable and experiments which gave an affirmative answer to this question are described. Other experiments bearing on the motion of a bomb after striking the water are described.

The solutions to the equations of motion of a particle with resistance proportional to V^2 should be of value in many aeronautical problems other than those concerning bombs.

R. & M. No. 1122.—"*Lift and Drag of Three Model Aeroplanes. Comparative Tests in Atmospheric and Variable Density Tunnels at the Same Reynolds Number.*" *By H. C. H. Townend, B.Sc. Price 6d. net.*

Tests made in the variable density wind channel of the American National Advisory Committee for Aeronautics on three model biplanes supplied by the N.P.L. showed a very satisfactory agreement between the model tests at high density and British flight tests at full scale on machines having the same wing sections as the models, in regard to lift coefficient (N.A.C.A. Report No. 279).

On the return of the models from America they were re-tested one of the 7 ft. tunnels of the N.P.L. at the same Reynolds numbe that used in the atmospheric pressure tests in America to disc if any discrepancies due to characteristics of tunnels, or methods measurement existed.

Such discrepancies as were found of this type appear to be small magnitude compared to those caused by scale effect, and result of the tests throws no doubt on the reliability of the varia density tunnel method of securing correct full-scale data.

R. & M. No. 1123.—"*Wind Tunnel Tests with High Tip-Speed Screws. The Characteristics of Bi-Convex No. 2 Aerofoil Sec at High Speeds.*" *By G. P. Douglas, D.Sc., and W. G. Perring, R.N.C. Price 9d. net.*

Describes tests made on airscrews with a sharp-edged bi-convex bl section at tip-speeds up to 1.3 times the velocity of sound. The us phenomena of a slight rise in lift coefficient with speed up speeds between .6 and .7 of the speed of sound and a rapid fall th after, and a drag coefficient which increases rapidly after .6 of speed of sound.

The National Advisory Committee for Aeronautics, U.S.A.

Report No. 269.—"*Air Force Tests of Sperry Messenger Model Six Sets of Wings.*" *By J. M. Shoemaker.*

Report of tests made in the variable density tunnel of a m Sperry Messenger fitted with wings of R.A.F.15, U.S.A.5, U.S.A U.S.A.35B, Clark Y and Göttingen 387. Tests of all were made various pressures ranging from 1 to 20 atmospheres, the latter responding approximately to full-size scale-effect.

All the wings showed a marked decrease in drag and all Göttingen 387 a notable increase in maximum lift with increas pressure. Assuming, as seems to be the case, that the high press conditions accurately simulates full-scale conditions, the low press tests of both model and of wings alone are shown to be very mislead

Report No. 270.—"*The Measurement of Pressure through Tubes Pressure Plotting Tests.*" *By P. E. Hemke.*

Records tests made to determine the error in pressure plottings ca by using small tubes to connect orifices on the surface of aircraft pressure indicating instruments. The results show a time lag a change of magnitude in the pressures thus recorded. Under ditions of full size test on aeroplanes these errors are so small to be of negligible importance. The change in magnitude is in direction of recording pressure higher than the actual pressures, may amount to a maximum of 5 per cent in exceptional cases.

Report No. 271.—"*Pressure Distribution Tests on P.W.9 Wing Mo Showing Effects of Biplane Interference.*" *By A. J. Fairbanks*

Records tests made on model wings and tail surfaces of the P. pursuit machine in a normal wind channel. Models of each w were tested both individually and in their correct biplane relation

The results show that the effect of biplane interference is p tically confined to the lower surface of upper wing and the u surface of lower wing, and that the overhang of the upper wing not greatly affected by the presence of the lower wing.

It was also found that a slight wash in of the cut down ce section of the upper wing would compensate for the reduced cho so long as the aerofoil section was not mutilated—and prevent a l drop in normal force over this section.

Report No. 272.—"*The Relative Performance Obtained with Sev Methods of Control of an Over-compressed Engine Using G line.*" *By A. W. Gardiner and W. E. Wheden.*

Report of an investigation of three alternative methods of kee detonation within permissible limits on an engine with high c pression. The three methods were (a) throttling, (b) maintaining throttle, but greatly retarding ignition, (c) varying inlet timing reduce effective compression.

Tests were made on a variable compression engine and the consumption and power output with 80 per cent. benzol, 20 per c petrol at 4.7 compression were used as a standard of comparison.

Method (a), throttling, gave a decrease of 39 per cent. in po and a markedly smaller fuel consumption than the stan compression. Method (b), retarding ignition, maintained practic constant output and fuel consumption independently of compress The ignition advance had to be reduced from 30° at 4.7 to 3° at compression. Exhaust temperature and heat loss to water jack and explosion pressure remained normal at the higher compressi

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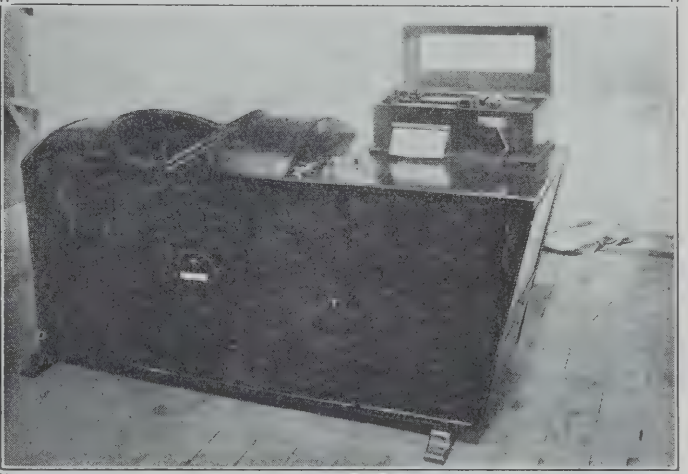

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Method (c) gave a loss of about 25 per cent. in output and a marked increase in fuel consumption at the higher compression ratio.

It is concluded that retarding of the ignition is the most satisfactory service method of controlling a super-compressed petrol engine at low altitudes.

Report No. 273.—"*Wind Tunnel Tests on Auto Rotation and the 'Flat Spin.'*" *By M. Knight.*

See Aeronautical Engineering, Mar. 28, page 434 (Technical Abstracts).

Report No. 274.—"*The N.A.C.A. Photographic Apparatus for Studying Fuel Sprays from Oil Engine Injection Valves and Test Results from Various Researches.*" *By E. G. Beardsley.*

The apparatus used for photographing oil sprays is required to produce exposures of a duration of about one-millionth of a second at a rate of several thousands per second. The object is attained by charging a bank of condensers from a high tension supply to 30,000 volts and successively discharging each condenser across a spark gap by a motor-operated switch.

This spark gap is used to illuminate the oil spray and the illuminated images are recorded by a lens and a rotating film drum.

Photographs of a number of sprays with injection pressures of up to 8,000 lbs./sq. in. into air at pressures up to 900 lbs./sq. in. have been taken successfully. From these a large amount of data as to spray penetration under various conditions have been obtained.

Report No. 275.—"*The Effect of the Walls in Closed-type Wind Tunnels.*" *By G. J. Higgins.*

Records a series of tests on different aerofoil models in the variable density wind tunnel to determine the effect of tunnel wall interference. Several methods of correcting for this effect were tried, and the Prantl theoretical correction was found to be the most satisfactory.

An appendix deals with a survey of the air velocity in this tunnel close to the tunnel walls. This showed a marked "scale effect" in the thickness of the boundary layer, which grew in depth with increasing density.

Report No. 276.—"*Combustion Time in the Engine Cylinder and its Effect on Engine Performance.*" *By C. F. Marvin, Jr.*

A very simple consideration of the effects of rate of combustion in an I.C. engine and its effect on efficiency and output. Though maximum efficiency should be obtained by instantaneous combustion, the author shows that by suiting the ignition timing to the actual conditions widely different rates of combustion should make inappreciable differences to efficiency and output.

Report No. 277.—"*The Comparative Performance of an Aviation Engine at Normal and High Inlet Air Temperatures.*" *By A. W. Gardiner and D. W. Schey.*

Investigation of output and fuel consumption of an aero-engine when the inlet air pressure is maintained steady and the temperature of that air varied between 45° and 180° F. The results show that the output falls off more rapidly than as the square root of absolute temperature, and follows a linear law in the case of a 30 per cent. benzol mixture.

Report No. 278.—"*Lift, Drag, and Elevator Hinge Moments of Handley Page Control Surfaces.*" *By R. H. Smith.*

Tests on Handley Page type balanced elevators with various positions of the inset hinge, used on a symmetrical tail-plane section.

Report No. 279.—"*Tests on Models of Three British Airplanes in the Variable Density Wind Tunnel.*" *By G. J. Higgins, W. S. Diehl and G. L. De Foe.*

Reports tests made at varying pressures on models of the BE2E with R.A.F.19 wings, Bristol Fighter with R.A.F.15 wings and a Bristol Fighter with R.A.F.30 wings at the request of the British Aeronautical Research Committee.

The observed variations in lift coefficients of these models at varying pressures agree extremely well with the variations between British model and full-scale results for the same machines, thus tending to confirm the reliability of the high-pressure wind tunnel as a method of overcoming the "scale-effect" difficulty.

Variations in drag coefficients with varying pressure show a scale-effect of the type normally found, but no comparison between these and British full size tests is possible as the models were devoid of tail surfaces, radiators, etc. The variation in drag is however mainly due to parts of the model other than wings.

Report No. 280.—"*The Gaseous Explosive Reaction. The Effect of Inert Gases.*" *By F. W. Stevens.*

Analysis of experiments made with soap-bubble constant pressure bombs to determine the effect on combustion rate of a $CO+O$ mixture diluted with varying proportions of CO_2, N_2 and He.

Report No. 281.—"*The effects of Fuel and Cylinder Gas Densities on the Characteristics of Fuel Sprays for Oil Engines.*" *By W. F. Joachim and E. G. Beardsley.*

Records and analyses results of tests made with the photographic apparatus described in Report No. 274, to discover the effect of fuel and cylinder gas densities on the penetration of fuel-sprays. The results show that penetration increases with increasing density of injected fuel, owing to less complete atomization and decreases with increasing density of the gas in the chamber. Tests with gases of differing specific density show that gas pressure per se has no effect on penetration.

Report No. 282.—"*The Performance of Several Combustion Chambers Designed for Aircraft Oil Engines.*" *By W. F. Joachim and Carlton Kemper.*

Reports of tests made on a single-cylinder test engine fitted with a cam-operated injection pump and a spring-loaded injection valve fitted with four types of combustion head running on Diesel oil of S.G. .85 over a speed range of 600 to 1,800 r.p.m. Two of these heads were of the plain type, one with a domed and one with a pent-house roof. The other two were bulb-type. Of these one had a tangentially directed outlet designed to produce high turbulence in the bulb during compression and in the cylinders during expansion stroke.

The results show that aircraft oil engines can be run at speeds of round 1,800 r.p.m. without encountering excessive explosion sures.

With the bulb-type head and tangential outlet, an I.M.E.P. o lbs./sq. in., a fuel consumption of 0.43 lbs. per I.H.P. hour a maximum explosion pressure of 740 lbs./sq. in., and a minimum consumption of 0.26 lb. per I.H.P. hour at an I.M.E.P. of 52 sq. in. was reached at 1,600 r.p.m. The other heads gave inf results.

Report No. 283. "*A Preliminary Investigation of Supercharging Air-cooled Engine in Flight.*" *By Marsden Ware and O Schey.*

Report of results of flying tests made with Wright Whirlwind engines and N.A.C.A. Roots type superchargers to determine wh any mechanical or temperature difficulties were likely to be countered on a supercharged air-cooled engine.

Ground-level air pressures were maintained to 18,500 ft. withou effect on the engine and without excessive cylinder-head tem tures.

Report No. 284.—"*The Comparative Peformance of Roots Type craft Engine Superchargers as affected by Change in Im Speed and Displacement.*" *By Marsden Ware and E. E. W*

Comparison of the performance of the Roots type supercha differing essentially only in the length of the impellers and ther in the air displacement per revolution. Assuming no losses i speed of revolution of each of these blowers were made inversely portional to the length of the impellers, the delivery rate and p consumed would be the same in all cases. There are losses, these tend to increase with the smaller-sized blower running speed giving equal air output. Tests show that the increased p therefore necessary to drive the small high-speed blower is small unimportant as compared with the saving in weight and bulk o smaller machine.

Report No. 286. "*Aerodynamic Characteristics of Aerofoils V.*"

Standardised curves giving the profile, lift, drag, and C.P. acteristics of 135 aerofoil sections.

The Geared Bristol Jupiter Engine.

The Bristol Aeroplane Co. Ltd., in accordance with their usual cedure of submitting all their engines to the most extensive po tests, have just subjected one of the new geared Jupiter engin 150 hours' flying test. The engine was fitted to a Bristol Bloodh for these tests.

Apart from securing the obvious end of proving the engine its service this test was intended to discover the most suitable compr ratio for use in the high compression type of engine and to covering a suitable arrangement of exhaust system for this en

With the two-to-one reduction gear the cooling effect of th stream on the exhaust ring is much less than with the direc engine under otherwise similar conditions, and for the geared an exhaust ring having more cooling surface, together with se outlet pipes from each exhaust valve to the ring, have been pr to ensure that in service the temperature of the exhaust system not exceed the limits set by the Fire Prevention Comm requirements.

The photograph reproduced shows the geared engine with e ring as installed on the Bloodhound. The result of the 150 hour was exceedingly satisfactory and the exhaust ring shown an compression ratio of 5.8 have been adopted as standards.

The speed of the Bloodhound was found to be increased by 12 at 5,000 ft. as a consequence of fitting the geared engine.

(*Continued from page* 530.)

interested crowd of spectators. In the evening all competitors were entertained at a dinner by the *Aéro Club de l'Est.*

On Sept. 15 Rouyer was again first to leave, his departure for Lyon being timed at 08.13 hrs. He was followed at 08.25 hrs. by Lusser. At 08.27 hrs. Lady Heath and Percival, on Avians, and Tapper on Lady Heath's Moth, left in close formation. At 10.05 hrs. Lemerre, "hatted and gloved," left on the Guerchais at 10.31 hrs. Broad brought up the rear on the Gipsy-Moth.

All arrived safely at Lyon, where the arrangements were in the hands of the *Aéro Club du Rhône et du Sud-Est,* and competitors were given a dinner in the evening by M. Vermorel, President of the *Aéro Club du Rhône.*

The departures for Marseille on Sept. 16 took place between 08.24 hrs. and 13.15 hrs, Broad, as usual, being the last to leave. Lady Heath was the first to arrive at Marseilles, and Broad the last, the latter having met the *mistral* which sprung up during the day. Owing to the distance of the aerodrome from Marseille the crowd here was not so big as at previous stopping places, but the arrangements for the competitors, which were in the hands of the *Aéro Club de Provence,* were as efficient as usual. All competitors were entertained to dinner by the *Aéro Club* in the evening.

On Sept. 17 competitors had to fly from Marseille to Toulouse. All left Marseille between 08.06 hrs. and 08.30 hrs. and all arrived safely at Toulouse with the exception of Lusser. He had landed at Lezignan out of petrol and filled up with some inferior spirit, which forced him to land again at Carcassonne, where he stayed the night. The arrangements at Toulouse were in the hands of *l'Amicale des Aviateurs,* and a banquet was given to all competitors and officials in the evening under the presidence of the President of the Toulouse Chamber of Commerce.

On Sept. 18 Lusser left Carcassonne and flew to Toulouse, where he arrived at 07.11 hrs. He expressed his intention of retiring from the contest, but was prevailed upon to continue by his mechanic, and left half an hour later for Bordeaux. The first away was Lemerre, at 08.25 hrs., and the last was, as usual, Broad, at 10.04 hrs. All arrived safely at Bordeaux, the most impressioning arrival being that of Broad on the Gipsy-Moth, with Tapper on Lady Heath's spare-carrying Moth-flying wing to wing.

In the evening the *Aéro Club du Sud-Ouest* gave a *vin d'honneur* to all competitors and officials.

The following day competitors flew from Bordeaux to Nantes, and on Sept. 20 from Nantes to Le Havre.

On this latter stage Lady Heath was forced to land at Caen, and later on the beach at Trouville with a broken piston. She was compelled to stay at the latter place overnight, as, although her Moth which was flown round the course by Tapper as a spares carrier had fetched a new piston, it was too late to complete repairs.

On Sept. 21 the last lap was completed from Le Havre to Le Bourget. Lady Heath got her Avian going again and flew to Havre and on to Le Bourget. Broad was detained at Le Havre with a defective oil pump, but all other competitors got through to Le Bourget.

Percival arrived first, at 09.43 hrs., and he was followed eighteen minutes later by Lemerre on the Guerchais monoplane. Rouyer and Lusser were the only other two arrivals.

The final classification was as follows: (1) Lusser (Germany), Klemm monoplane (40 h.p. Salmson), 1,691 pts.; (2) Percival (Great Britain), Avro Avian (A.D.C. Cirrus III), 1,606 pts.; (3) Broad (Great Britain), D.H. Gipsy-Moth (85 h.p. Gipsy), 1,531 pts.; (4) Lady Heath (Great Britain), Avro Avian (85 h.p. A.D.C. Cirrus III), 1,531 pts.; (5) Rouyer (France), Caudron C—109 (40 h.p. Salmson), 1,294 pts.; (6) Lemerre (France) Guerchais monoplane (60 h.p. Anzani), 1,055 pts., and (7) Fisbach (France), Albert monoplane (40 h.p. Salmson), 833 pts.

The final result is satisfactory to England and to Australia, for Mr. E. W. Percival is one of the most prominent Australian civil pilots. The success of Herr Lusser must act as a slight consolation to France, as he was using a 40 h.p. Salmson engine, which gave him no trouble except for the slight attack of indigestion at Carcassonne, due to being fed on some local brand of *essence* unsuited to its delicate interior.

The rules of the competition may have provoked much dissatisfaction, and there is no doubt that they did not work as was intended, but, taking things all round, all connected with the contest did their very best to give everyone a good time and, where possible, the benefit of the doubt.—L. B.

THE MILK WAR IN THE AIR.

A new activity for aircraft has been found by the National Farmers' Union. The Chairman of the N.F.U. Milk Committee, Mr. Langford, has been flying about the country exhorting meetings of farmers to band together against the profiteering middlemen. Here is the story as told in *The N.F.U. News-sheets* of Sept. 17 and 24.

The Milky Way.

No feature of the "Milk War" has appealed more to the public than the Flying Campaign waged by Alderman Langford, Mayor of Hereford and Chairman of the N.F.U. Milk Committee. A member of the Union, Colonel Strange of Worth Matravers, Dorset, who is keenly interested in the advance of private aviation, generously placed his private 'plane, piloted by Mr. H. W. R. Banting (a "Simmonds Spartan" machine, which flew in this year's King's Cup Race), at Alderman Langford's disposal.

Aldeman Langford flew from Croydon to Devizes and thence to Hereford on Friday last. He was seen off from Croydon by Mr. T. H. Ryland, Chairman of the Union's Co-operation Committee, and Mr.

THE MILK WAR IN THE AIR.—Here are seen the personalities concerned in this new use of aircraft. Left to right: Lt.-Col. Louis Strange, D.S.O., M.C., D.F.C., himself a farmer on a big scale, who lent the machine to the National Farmers' Union; Mr. H. W. R. Banting, the pilot; Mrs. Banting, and "Vimy"; Mr. George Dallas, Agricultural Organiser of the Workers' Union; Alderman E. W. Langford, Mayor of Hereford, and Chairman of the National Farmers' Union Milk Committee; and Mr. T. H. Ryland, Chairman of the Operations Committee of the N.F.U.; and the Simmonds Spartan biplane (Cirrus III engine) which conveyed Alderman Langford to meetings all over the country.

George Dallas, the Agricultural Organiser of the Workers' Union, who at once left Croydon by road for Charing Cross, a distance of about 12 miles; Alderman Langford had landed in a field at Devizes some 90 miles away before Messrs. Ryland and Dallas had reached Charing Cross.

The way in which this aeroplane has landed and taken off from unprepared places opens up a vista of the part that light aeroplanes are destined to play in the future. Alderman Langford has received a rousing welcome, wherever he has been. This is his first experience of flying and he is enthusiastic about it.

THE FLYING MAYOR!

Undoubtedly the episode of the milk "war" now happily ended which struck the public imagination was the utilisation of a privately-owned aeroplane by the farmers' leader, Mr. E. W. Langford, now enthusiastically acclaimed as the Flying Mayor of Hereford! By this means Mr. Langford was able to carry out the dual rôle of negotiator in London and inspirer of the farmers' campaign in the countryside.

When Colonel Strange, a member of the N.F.U. in Dorset, placed his Simmonds Spartan light aeroplane at Mr. Langford's disposal he could not have foreseen the effect of his generous impulse. With the entire Press of the country as instrument no more vivid message of the urgency and seriousness of the situation could have been sent to milk producers in every corner of the country.

Another interesting, if less spectacular consequence, has been to demonstrate the practical value and remarkable simplicity of swift travel across country by a two-seater light 'plane. The Simmonds Spartan light aeroplane used on this occasion is clearly not dependent on the officially recognised elaborate aerodromes for landing and setting off. In fact, under the circumstances there was no time for any careful choice beforehand of landing places.

No doubt had the necessity called for it use would have been made of some of the excellent fields in the proximity of the farmers' rallying centres which were mentioned as inducements in the many invitations received by the popular spokesman of the milk producers.

DUTCH EAST INDIAN ENTERPRISE.

At 06.00 hrs. on Sept. 13 Capt. Koppen left Schiphol Aerodrome, Amsterdam, on a Fokker FVII-3m monoplane (three Armstrong Siddeley Lynx engines) to fly to Batavia, a total distance of 8,750 miles, in twelve daily stages. This machine is one of four which are to be flown to the Dutch East Indies, there to inaugurate internal mail and passenger services.

The itinerary of the route is as follows:—Amsterdam, Budapest, Constantinople, Baghdad, Bander Abbas, Karachi, Allahabad, Calcutta, Rangoon, Bangkok, Medan, Palembang and Batavia.

The machine reached Karachi on Sept. 18, Calcutta on Sept. 20, and Rangoon on Sept. 21.

Reports from Holland dated Sept. 24 announce that this machine had arrived at Palembang (Sumatra), presumably on the 23rd, and it may be assumed that it will have reached Batavia before this note can be published.

The second machine left Amsterdam on Sept. 20 and on Sept. 24 was reported from Holland to have reached Bander Abbas.

The third machine will leave Amsterdam on Sept. 27.

Heavy rains in British India have made certain of the aerodromes unfit for use, and the first machine has been unable to land at all its scheduled stopping places. In such cases mails have been landed at the nearest usable aerodrome.

The fourth machine will leave on Oct. 4.

A fifth machine will leave on Oct. 11, but this machine will eventually fly back to Amsterdam. During 1929 eleven return flights to Batavia will be made in continuation of this last mentioned flight.

The first machine carried 2,251 registered and 18,631 ordinary letters, postcards and printed matter, including mails for various places in British India. All machines will carry mail, for which purpose special Dutch Air-post stamps have been issued.

The first routes to be established by the operating co
pany, the Nederlandsch-Indische Luchtvaart Maatschappij,
concern allied with the K.L.M., at the end of October w
be the Batavia-Semarang-Surabaya and Batavia-Bandoeng se
vices. A service between Batavia-Singapore and Med
(Sumatra) will be opened soon after.

The Fokker monoplanes, which carry a crew of two pilo
and an engineer, possess certain new features, the mo
interesting of which are the large diameter landing whe
brakes. These brakes are of the internal-expanding typ
similar in design to those used on motor-cars. The bra
lever is compensated and located between the two pilots a
is connected to the tail skid to enable the machine to
turned quickly on the ground by braking the wheel on t
inside of the turn. It is said also that its application
duces the run of the machine on the ground from 250
100 yards and that the operation is so gradual that there
no chance of the machine nosing over.

The wheels are shod with Goodrich tyres and run
roller bearings. The cabin is ventilated by a new desi
of louvre controlled from the interior.

The Armstrong-Siddeley engines, with which the m
chines are equipped, are the standard seven-cylinder a
cooled radial Lynx type, which develop 200-225 h.p. Th
is the same type of engine as was used last year by Lie
Koppen on his experimental record-breaking flight fro
Amsterdam to Batavia and back, and its success on th
occasion largely accounted for its selection for the n
service.

The latest engines are fitted with metal airscrews, t
wing engines using two blades and the central engine thr
A top speed of approximately 120 miles per hour, a cruisi
speed of 104 miles per hour, and a landing speed of
miles per hour indicate the capabilities of the machines.

On the afternoon preceding the send-off of the first m
chine an official reception was held by the K.L.M. at Schipl
Aerodrome, near Amsterdam. The aeroplanes were lined
in front of the enclosure and a large number of guests
the K.L.M., besides large crowds of the public, inspect
them. Most of the afternoon was occupied in broadcasti
the speeches of Ministers and important men in the Dut
financial and flying circles.

THE FIRST FLIGHT OF LZ127.

LZ127, the new 3,700,000 cubic foot Zeppelin airsh
left the Zeppelin shed at Friedrichshafen on Sept. 18
16 hrs. and, thanks to calm weather, was handled with
difficulty. She cruised over Lake Constance and was hou
safely by 19.00 hrs.

She left her shed again on the morning of Sept. 19 for
first cross-country flight. The airship had on board
total of 76 persons and was commanded by Dr. Eckener
the veteran pilot of the earliest Zeppelins.

During the day the airship passed over Zürich, Bas
Freiburg, Baden-Baden, Karlsruhe, Mannheim, Frankfort a
Darmstadt before returning to Friedrichshafen.

Passengers on this trip describe the journey as be
exceeding comfortable and free from either the rolli
pitching or noise usually noticeable in aeroplanes, and th
were especially struck by the freedom of movement gi
by the passenger accommodation.

The new gas-fuel for which this ship is designed was
used on the trials, because difficulties have arisen in
manufacture thereof. The Zeppelin firm have decided
reserve all available supplies of the gas-fuel for the p
jected flight to America. Consequently a benzol-pet
mixture was used.

A specification of LZ127 will be found in the Aeronaut
Engineering Supplement in this issue of THE AEROPLA

THE LATEST ZEPPELIN.—The first appearance from her shed at Friedrichshafen on Sept. 18 of LZ127, named "Graf Zeppelin" after the great originator of the type.

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THE FLYING CLUBS.

The London Aeroplane Club.

[Sec. Harold E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending Sept. 23.

Flying Time 68 hr. 45 min. *Instruction* 40 hr. 25 min. *Soloists* 28 hr. 20 min. *Instruction.—With Mr. V. H. Baker*—Miss Fletcher, Miss Hicks, Miss C. Johnson, Dr. Cook, Messrs. J. W. Radbone, D. I. Peacock, A. J. Richardson, B. S. Whidborne, G. R. C. Charles, H. R. Presland, A. O. Wigzell, J. A. C. Haslam, E. C. Gosling, G. F. Roberts. *With Mr. F. R. Matthews*—Capt. The Master of Gray, Miss H Cholmondeley, Lt.-Col. A. J. Farfan, Messrs. S. Hansel, A. O. Wigzell, F. V. Fairbairn, E. L. Gosling, C. J. Pool, N. L. Sherlock, E. D. Moss, W. W. Briscoe, D. I. Peacock, B. L. Middleton, T. H. O. Richardson, L. R. Gaywood. *Soloists.*—Miss Fletcher, Miss Hicks, Capt. A. G. Lamplugh, Major K. M. Beaumont, D.S.O., Capt. Roche Kelly, Messrs. H. C. Bergel, E. T. Symmons, C. Campbell, P. W. Hoare, E. Hosley, H. Sutton, J. J. Hofer, J. A. G. Haslam, D. P. H. Esler, W. Hart, W. L. M. O'Connor, J. W. P. Chalmers, E. D. Moss, D. I. Peacock, T. Elder Hearne, P. A. Wills, G. R. S. Charles, M. L. Bramson, G. H. Craig, A. R. Ogston, E. E. Stammers, A. F. Wallace, R Ward, E. A. Lingard. *Passengers.*—6.

Notes.—Messrs. H. Sutton and W. Hart did their Certificate Tests.

Miss Hicks made her first solo flight on Sept. 19.

Club Aircraft.—Saturday was a busy day as regards Club Aircraft. We took delivery of a new D.H. Moth (Cirrus Mark II) G-AABL to replace G-EBYD, which was crashed on Aug. 3.

Mr. Clark, the Pilot Instructor of the Cinque Ports Flying Club, arrived at Stag Lane with a cheque in his pocket to purchase one of the Club's Moths. The transaction was completed in a few minutes and he left immediately with G-EBNN for Lympne. Shortly afterwards, the Club heard that a D.H. Moth (Cirrus Mark II) fitted with slots was for sale. It was tested by Mr. Matthews and Capt. A. G. Lamplugh and the purchase completed the same afternoon. The London Aeroplane Club has now five D.H. Moths (two Mark II and three Mark I). They will consider offers for the Mark I Moths.

Record Flying Month.—September has so far proved a record month for the Club. The previous best month since the club was formed was May, 1927, 235 hours. The total so far this month is 244 hours and nine Members have obtained their "A" Licences. The Club Instructors, Messrs. V. H. Baker and F. R. Matthews, have been ably supported by the ground staff, Messrs. C. Humphreys and G. Gibbons in achieving this record result.

Shed Accommodation.—The new hangar for the accommodation of the Club Aircraft is now being erected and will be ready in a few weeks.

Mr. F. R. Matthews—Wedding Present.—Mr. Matthews has been presented with a cheque for £28 11s. representing the sum kindly subscribed by the members.

The Lancashire Aero Club.

[Sec.: F. W. Atherton, Woodford Aerodrome, Cheshire.]

Report for week ending Sept. 22.

Flying Time 36 hr. 35 min. *Instruction* 11 hr. 35 min. *Soloists* 12 hr. 30 min. *Passengers* 9 hr. 10 min. *Tests* 2 hr. 40 min. *Instruction.—With Flt. Lt. Todd*—Miss Emery, Miss Swithenbanks, Miss Baerlein, Messrs. Eckersley, Ashworth, J. H. Taylor, S. Nuttall, Goss, Kay, Butt, Allott, Brooking, Agar, Foote, Greg, Davies, R. G. Barlow, Whitehouse, Faulkner, Dane, Riley, Hepworth. *With Mr. Cantrill*—Mr. Kay, Miss Baerlein. *With Mr. Scholes*—Mr. J. H. Ashworth. *Soloists (under instruction).*—Messrs. Faulkner, Ashworth, W. Eckersley, Kay, Allott. *Pilots.*—Miss Baerlein, Messrs. Cohen, Michelson, Caldecott, Mills, Ruddy, Lacayo, Nelson, D., Brooking, Leeming, Twemlow, Hall, Riley, Agar. *Passengers.*—22.

Notes.—Messrs. Eckersley and Kay made successful first solo flights.

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. J. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Sept. 22.

Flying Time 20 hr. 35 min. *Instruction* 6 hr. 50 min. *Soloists* 13 hr. 25 min. *Passengers* 20 min. *Instruction.—With Mr. Beck*—Miss Ellison, Messrs. Bamford, Brackenbury, Dujardin, Gaunt, Little, Palmer. *Soloists.*—Messrs. Dujardin, Fitton, Little, Senior. *"A" Pilots.*—Messrs. Ambler, Birch, Clayton, H. Crowther, Dawson, Ellison, Lister, Mann, Thomson, Wood. *Passengers.*—2.

Notes.—A fine first solo was put up by Mr. Dujardin who has shown great perseverance and keenness in carrying on despite innumerable difficulties.

We were visited during the week by Mr. Bentley, who was on his way to Scotland and called in his Moth, *Dorys*.

We have now been awaiting spares for our third machine for a matter of some weeks. This aeroplane is in perfect readiness for the engine when spares come to hand. We still live in hope!

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Report for week ending Sept. 22.

Flying Time 44 hr. 28 min. *Instruction* 21 hr. 35 min. *Soloists* 19 hr. 40 min. *Passengers* 2 hr. 45 min. *Test* 28 min. *Instruction.—With Flt. Lt. T. Rose, D.F.C., and Mr. W. H. Sutcliffe.*—Messrs. M. Blakeway, O. L. Richards, F. D. Scott, J. A. V. Cook, R. G. Welch, C. T. Davis, T. W. Wild, G. P. Haylock, D. N. Khatri, J. K. Motton, W. J. Halland, F. J. Steward, T. H. Dury, J. Fitzgerald, H. Coleman, M. C. Wilks, P. M. Patel, J. A. Ridsdale, A. E. Coltman, Mrs. Leigh Fermor, Dr. W. G. Tillieke, Major D. Thompson. *"A" Pilots.*—Messrs. E. P. Lane, S. Duckitt, G. Robson, G. C. Jones, R. C. Baxter, R. D. Bednell, S H. Smith, H. J. Lattey, W. M. Morris, E. R. King, M. A. Murtagh, J. Rowley, R. L. Jackson, W. Swann, Dr. N. J. Nock. *Soloists (under instruction)*,—Messrs. R. G. Welch, J. A. V. Cook, F. J. Steward, E. L. Hulme, T. H. Drury, H. Coleman, J. W. Astley, J. K. Morton, D. N. Khatri. *Passengers.*—8.

Notes.—Messrs. H. Coleman, J. K. Morton, and D. N. Khatri successfully made first solos.

Flt. Lt. Rose collected LT from De Havilland's on Tuesday after its third annual overhaul. LT has been in continuous service on school work since September, 1925, with out any untoward happening and now has 833 hr. flying to its credit.

The Club will be represented at the opening of the Northampton Club on Saturday next by EBXT.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, Hamble Aerodrome, Southampton.]

Report for week ending Sept. 21.

Flying Time 37 hr. 55 min. *Instruction* 18 hr. 20 min. *"A" Pilot* 10 hr. 35 min. *Soloists* 3 hr. 35 min. *Passengers* 4 hr. 55 min. *Test* 30 min. *Instruction.—With Flt. Lt. Swoffer and Mr. W. H. Dudley*—Messrs. Reuther, Mariner, Beagley, Tobutt, Crook, Hall, Buckley Brodrick, Evershed, Richardson, Mattocks, Weekes, Miss Home, Mrs Gordon Smith, Cdr. Bell, Major Thorn, Lt. Des Graz, Mrs. Crook, Lt Roskill, Lt. Oswald, Miss Melvill, Miss Grace, Lt. Coode. *"A" Pilots.*—Messrs. Scott-Hall, Wells, Parker, Michelmore, Curtis-Nuthall, Sanders Clark, Jopp, Rayson, Hayter, Capt. Kirby, Lt. Heinemann, Lt. Heath Miss Grace, Lt. DuCane. *Soloists.*—Messrs. Hall, Whittle, Holmes Hughes, Cdr. Bell, Cdr. Tower. *Passengers.*—25.

Notes.—We have been greatly handicapped this week owing to lack of aircraft, and have been struggling along with one Moth. Misfortunes never come singly. On Wednesday a soloist tried to land on one of the few rough spots on the aerodrome and the machine went onto its nose. Another prop gone but fortunately little other damage In consequence we had no machine at all for 12 hours.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending Sept. 23.

Flying Time 45 hr. 20 min. *Instruction.—With Mr. Young*—Messrs W. S. Coates, L. C. Morter, A. A. Rice, C. Bethell, C. Lowen, C Girling, H. J. Justin, C. Brown, R. Harvey, Mrs. Cator. *Soloists.*—Messrs. D. Corsellis, E. Varden Smith, A. A. Rice, E. Lambert, G Wharton, Sq. Ldr. C. A. Rea, Messrs. A. G. Marshall, F. Gough W. P. Cubitt, H. Pank, C. Bethell, H. J. Cator, H. Neave, N. Brett T. Image, C. Lincoln Sutton, R. Harmer, C. Land, W. A. Ramsay H Harvey. *Passengers.*—63.

Notes.—Congratulations to Mr. C. Bethell and Mr. C. Land on their first solos and also to Mr. H. Neave for his successful height test.

This week we are seeing ourselves on the screen as we really are perhaps not as we should be. The British Film Tatler, who have recently started operations, took a film of the Club in operation a fortnight ago through the kindness of Mr. Benjamin, a local Cinema Manager, who went to no end of trouble that the film might be a success. On Saturday evening after the show was over we had the opportunity of seeing the film through. This will prove a great attraction in the City and we are sure will do quite a lot to help us in our efforts to convert people tc airmindedness

On Monday, Mrs. Harry Cator flew up to her home in Yorkshire and was accompanied by the Instructor, as this was her first long cross-country flight. She was met by practically all the inhabitants surrounding her home and given a very hearty welcome. The journey was made in 2 hr., as was the return journey the following day. No trouble of any kind was experienced.

We hope to send three machines to visit the Northampton Club on Saturday—that is, of course, if they are all whole by then.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadleigh Suffolk.]

Report for week ending Sept. 15.

Flying Time 29 hr. 10 min. *Instruction* 7 hr. 50 min. *"A" and "B" Pilots* 7 hr. 45 min. *Soloists (under instruction)* 6 hr. 35 min *Passengers* 6 hr. 25 min. *Tests* 35 min.

Report for week ending Sept. 22.

Flying Time 17 hr. 30 min. *Instruction* 10 hr. 30 min. *"A" and "B" Pilots* 2 hr. 5 min. *Soloists (under instruction)* 3 hr. 10 min *Passengers* 55 min. *Tests* 50 min. *Instruction.—With Mr. Lowdell*—Dr Mildred Yate, Mrs. Young, Messrs Welsh, Ogilvie, Wedd, Croydon B. F. and T. Marriage, Hanson, Billinton, Collins, Dr. Dunn. *Soloists (under instruction).*—Messrs. Ogilvie, Hanson and Jolly. *"A" and "B" Pilots.*—Dr. Sleigh, Messrs. Birt, Prentice, Brown.

Notes.—Owing to the display no report was sent in last week; therefore two weeks are now included in one report. We congratulate the Cinque Ports and the Norwich Clubs on being First and Second in the "On to Hadleigh," and also thank them and others for their valued support at the Display.

Mr. Glen Ogilvie passed his tests for "A" Licence. He spent his Summer holidays from Rugby with us and made very good progress as an *ab initio* pupil. He has now returned to school and at the end of this term will, we believe, take up an appointment in the Aircraft Industry. We hope that other Public School people will follow his example. We are all out to do what is within our power to help them.

The Bristol and Wessex Aeroplane Club.

[Sec.: C. F. G. Crawford, Filton Aerodrome, Bristol.]

Report for week ending Sept. 22.

Flying Time 23 hr. 50 min. *Instruction* 13 hr. 45 min. *Soloists* 6 hr *Instruction.—With Mr. Bartlett*—Miss Miles, Messrs. Davis, Dutton D. B. Singh, Heaven, R. S. W. Clarke, Tinson, Harris, Amory, Byrnes and C. Pitman. *With Mr. Tratman*—Mr. Davis. *With Mr. Culverwell*—Messrs. Davis, D. B. Singh.

Notes.—Mr. R. S. W. Clarke made his first solo flight on Sept. 21 Mr. D. H. Amory successfully passed the "A" Licence tests during the week.

With two machines away for renewal of C. of A., the total flying hours can be but few. The Brownie is expected back this week.

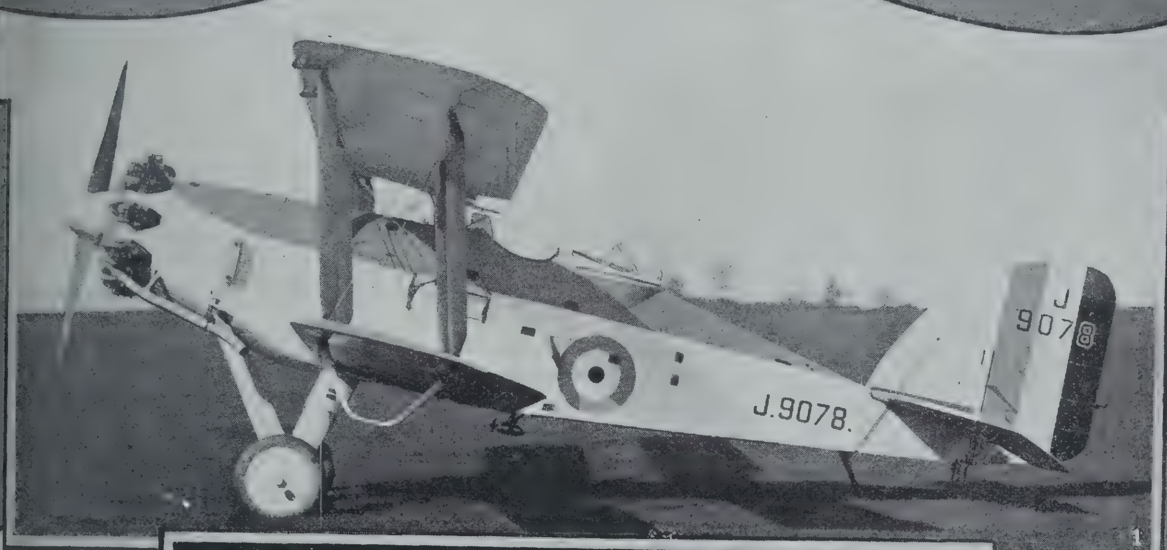
The Cinque Ports Flying Club.

[Sec.: R. Dallas Brett, 114, High Street, Hythe.]

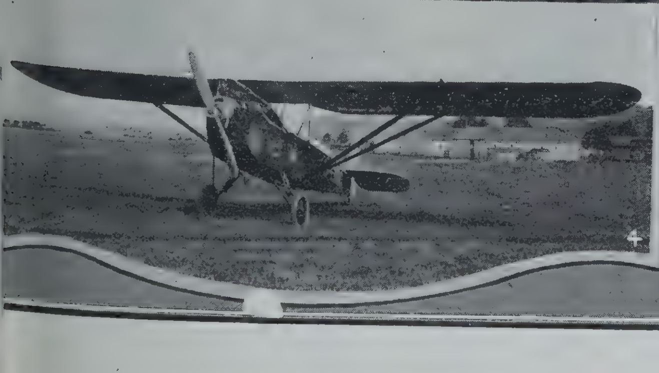
Report for week ending Sept. 22.

Notes.—No flying took place during week ending Sept. 22 owing to machine SS having to go back to the works for the results of Mr West's landing to be rectified.

The Club has begun to reap the fruits of its labour from the Government and advantage has been taken of this to buy another D.H. Moth. This will obviate delays due to minor accidents, which have held up flying during the Summer. The machine is a Mark Cirrus Moth NN and was delivered to Lympne on Saturday evening We hope to have our old SS back from the works on Wednesday and thereafter the two machines will carry on together and the hangar will house SS, NN, and ZZ. The latter belongs to one of



WESTLAND



WESTLAND AIRCRAFT

THE WESTLAND WAPITI.

(Photos 1 & 2.)

With Jupiter VI engine. A General Purposes Aircraft suitable for reconnaissance, bombing, wireless and advanced training, etc. Fitted with Handley Page Automatic Slot Gear. (Wood or all-metal construction.) As supplied to the Royal Air Force.

THE WESTLAND WIDGEON

(Photos 3 & 4.)

An ideal light 'plane for the private owner, club use, etc. Robustly constructed to exceedingly high standards. A machine the excellence of which will be appreciated by the most experienced as well as the new pilot. Possesses exceptional controllability, even when in stalled flight. Folding wings—no rigging to require adjustment—excellent view for pilot and passenger. Low running costs.

Enquiries solicited for all types of Civil and Military Aircraft.

WESTLAND AIRCRAFT WORKS
(Branch of Petters Limited).
Contractors to the Air Ministry,
YEOVIL, ENGLAND.

our members, Captain Rattray, who kindly let the Club use it for a bombing expedition against a motor-cycle and side-car at the Kent Motor Club's Grass Speedway Meeting on Sept. 19. Capt. Rattray was not successful in hitting the side-car though he nearly demolished one of the officials, and a bomb burst prematurely in the cockpit so that Capt. Rattray landed looking like a snow-storm.

It has been decided to make special rates for members joining the Club during the Winter months, taking effect from Oct. 1, and persons desirous of taking advantage of this may obtain full particulars from the Hon. Sec.

Nottingham Aero Club Ltd.

[Sec.: C. R. Sands, A.C.A., Imperial Buildings, Victoria Street, Nottingham.]

Report for week ending Sept. 13.

Flying Time 21 hr. 5 min. *Instruction* 8 hr. 55 min. *"A" Pilots* 6 hr. 15 min. *Soloists (under instruction)* 3 hr. 55 min. *Passengers* 55 min. *Tests* 1 hr. 5 min. *Instruction.—With Mr. Martin*—Messrs. Taylor, Cudlip, Paul, Chawla, Selvey, Hutchenson, Thorpe, Winn, Wynn, Thirlby, Shipside, Glenn, Hancock, Bradley, Kay. *"A" Pilots.*—Messrs. Taylor, Paul, Pilgrim, Selvey, Whitby, Bradley. *Soloists (under instruction).*—Messrs. Chawla, Shipside, Winn, Glenn. *Passengers.*—6.

Notes.—Our new machine—a "G" type Moth with Cirrus Mk. II engine, registration letters, G-AABA—was duly collected by Mr. Martin on Sept. 8 from Stag Lane and brought to Hucknall, since when it has been in great demand. The split undercarriage is a great improvement and is ideal for school work. We have quite a large number of members waiting to take their "A" tickets, so that we ought to have a fairly successful month after all.

Report for week ending Sept. 21.

Flying Time 20 hr. 40 min. *Instruction* 4 hr. *"A" Pilots* 7 hr. *Soloists (under instruction)* 7 hr. 40 min. *Passengers* 1 hr. 10 min. *Tests* 50 mins. *Instruction.—With Mr. Martin*—Messrs. A. A. Austin, J. S. Austin, Hutchinson, Kay, Darren, Cudlip, Hancock, Granger, Thorpe. *"A" Pilots.*—Messrs. Bradley, Wynn, Taylor, Selvey, Granger, Pilgrim, Austin. *Soloists (under instruction).*—Messrs. J. Austin, Hancock, Winn, Glenn, Shipside, Chawla. *Passengers.*—6.

Notes.—Morning and evening fog has prevented a large number of members from flying, but with only one machine in action, we cannot complain. Our engine for KW has just arrived, so we are starting this week with two kites.

We have to congratulate Mr. Glenn on passing his R.Ae.C. tests O.K. His height test showed a perfect "cupopola."

Mr. J. S. Austin would have completed his test, but failing light prevented him. Hard luck, as he has a long way to come and can only get periodically.

The skywriting "'erbs" are still with us, trying to monopolise our one and only stove (delivered by plain van) Owing to our very successful onslaughts both inside and outside the aerodrome, they have called for reinforcements in the shape of Sydney St. Barbe avec kite. We can cope with the whole personnel.

The Northamptonshire Aero Club.

[Hon. Sec. P. G. Hayward, 19, Market Square, Northampton.]

In the Club Notes last week the Northamptonshire Aero Club, in describing the whereabouts of their Aerodrome, stated that the nearest landmark was Sywell Wood. This has now been corrected to Sywell Reservoir.

The Isle of Purbeck Light Aeroplane Club.

[Sec.: Lt.-Col. L. Strange, D.S.O., M.C., D.F.C., Worth Matravers, Dorset.]

Flying Time 8 hr. 30 min.

Notes.—Club work this week has been much restricted, owing to the Spartan having been lent to the N.F.U. and her spare time being more than occupied by inquisitive people bent on "rumbling."

Thirty minutes with the Portman Hunt round Manston, a burning scent, big doubles with heavy going both on the take-off and landing side, nervous thrusters and cursing Master, leaves one with a good impression of the Spartan's recent work. Needless to say she came through sound in wind and limb and must be cast iron. Verily she is a "Good one to follow and a bad one to beat."

FLYING SCHOOLS.

The Henderson Flying School.

[Managing Director: Lt.-Col. G. L. P. Henderson, Brooklands Aerodrome, Byfleet.]

Report for week ending Sept. 20.

Flying Time 45 hr. 5 min. *Instruction.—With Col. Henderson*—Messrs. May, Vatcha, D'Eyncourt, Garthwaite, Elton, Kerr, Salah, Moursi, Groner, D'Eyncourt. *With Mr. Davis*—Mrs. Scott, Mrs. Monkton, Messrs. Hsiao, Vatcha, Eltham, Kerr, Banks, Swann, Ducane, Garthwaite. *Soloists.*—Messrs. Daniel, May, Hsiao, Bellville, Anderson, Oldmeadow, D'Eyncourt, Hill, Oliver, Stewart, Allen.

Notes.—With much regret we record the accident to Miss Honor Wellby, who, on about her 30th solo flight, inadvertently took off tail-down, made a flat turn to the left, and stalled when too low to recover control. We tender our sincerest sympathy to her parents.

A FATAL ACCIDENT AT BROOKLANDS.

On Sept. 20 Miss Margaret Honor Wellby, a pupil at the Henderson Flying School at Brooklands, while making a flight on one of the school machines stalled and dived onto the railway embankment just outside the motor park and was killed instantly.

At the inquest, held on Sept. 22, Lt. Col. G. L. P. Henderson gave evidence that Miss Wellby took off tail low and approaching the railway bank started to turn without banking properly. The machine thereupon swung its tail round and dived to the ground.

Major Cooper (Inspector of Accidents, The Air Ministry) said that his examination of the machine showed nothing to account for the accident.

A verdict of "Death by Misadventure" was returned.

LADY BAILEY'S RETURN.

The Hon. Lady Bailey, finding that the Sudan autho refused to sanction her unescorted flight over the d section of their territory on her return flight to Eng has decided to attempt the return journey via the Coast of Africa and thus evade their jurisdiction.

In pursuance of this aim Lady Bailey left Pretori Sept. 21 for Bulawayo, where she arrived on the same and left Bulawayo for Elizabethville (Belgian Congo) o morning of Sept. 22 and arrived there on Sept. 24.

A WARNING.

The following notice, dated Sept. 24, 1928, has been i by the Air Ministry for general information :—

AIR MINISTRY NOTICE TO AIRMEN.—NO. 70 OF THE YEA

PILOTAGE OF AIRCRAFT FITTED WITH THE HANDLEY PAGE AUTOMATIC

General Warning.

It is hereby notified :—The attention of all pilots is drawn fact that the object of the Handley Page Automatic Slot is to in the safety factor of flying by giving increased control to a when brought below the flying speed either through inadverten the part of the pilot or in cases of real emergency.

Unless, therefore, all slotted aircraft are normally flown as if they were not fitted with slots, the additional margin of given by the slots is entirely destroyed.

Consequently it is particularly emphasised that the criterion o pilotage in normal flying should be that the slots are never for the purpose of giving control below stalling speed, except emergencies for which they were originally fitted.

[Which is true enough up to a point, but one ima that any pilot might reasonably stall his machine on pu to sink into an aerodrome instead of doing a long and would do so relying on his slots to maintain c This could hardly be called a "real emergency."—C.

THE AUTOGIRO ABROAD.

Senor de la Cierva, accompanied by M. Henri Bouch editor of *L'Aéronautique,* left the London Terminal drome, Croydon, on Sept. 18 at 10.55 hours on the Au G-EBYY (Armstrong Siddeley Lynx engine) to mak first trip across the Channel on this type of machine.

While taxying to get the rotating wings up to spee machine "buck-jumped" on a patch of rough groun one of the rotating vanes struck the rudder, fortu only bending the framework of the rudder, which promptly re-bent straight.

Thereafter the machine took off, without waitin A.I.D. inspection or a renewal of the machine's airwort certificate after the bending of the rudder, and reach Bourget at 16.22 hours after landings at St. Inglever Abbeville to give demonstrations.

On Sept. 20, after a series of demonstrations Bourget, the undercarriage of the machine collapsed the wings were rotating at high speed, the machine on its side and the wing system was wrecked. Acc to some reports the undercarriage failed on a la whereas other reports are that the machine fouled a p

"HONORIS CAUSA."

On Friday, Sept. 14, the staff of the Royal Aircraft lishment at Farnborough gave a dinner and dance t and Mrs. R. J. Goodman-Crouch, as Mr. Crouch is transferred from Farnborough to the Air Ministry.

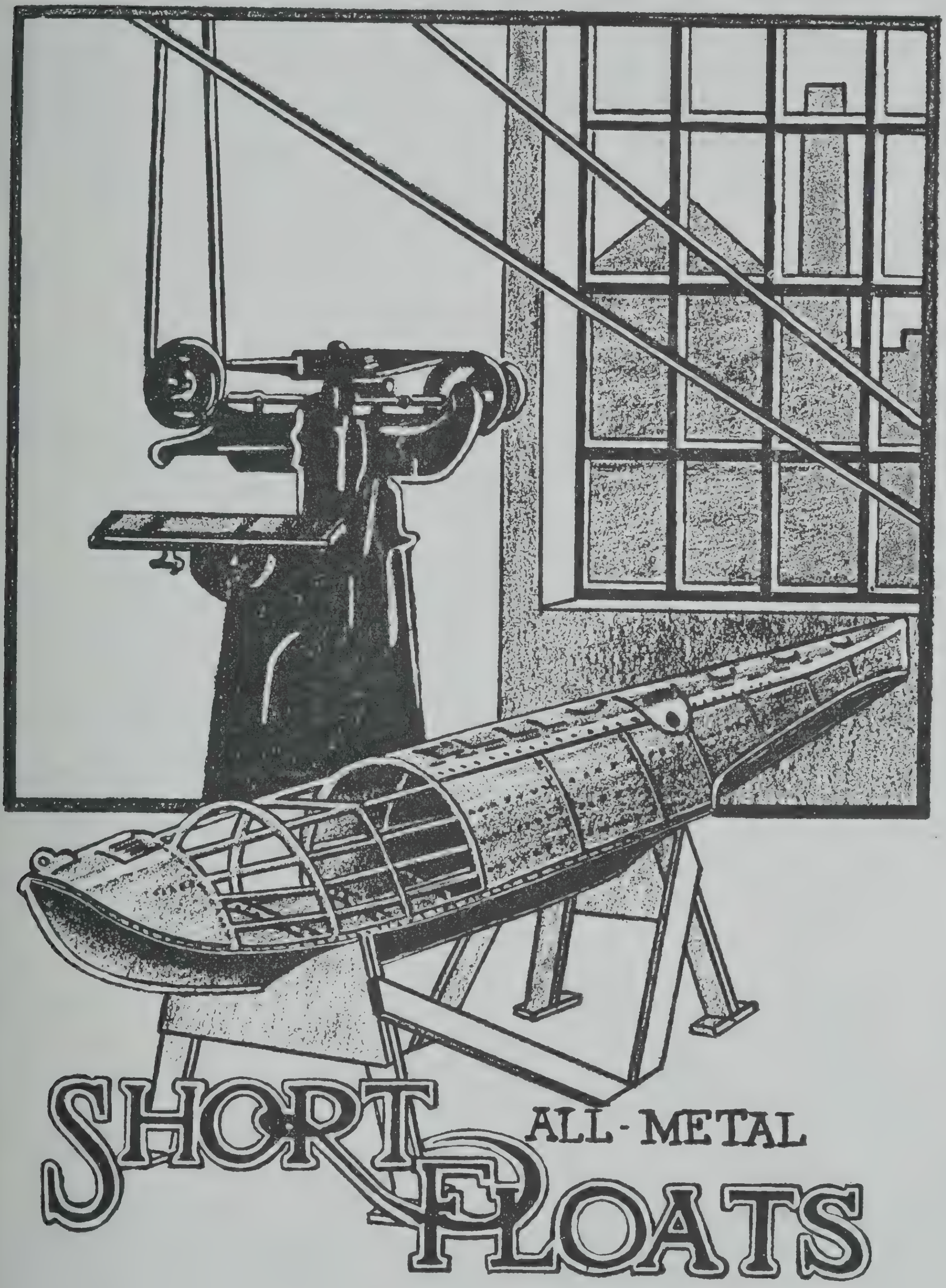
Mr. Goodman-Crouch has been head of the Air-wort Department at Farnborough since its inception and ha responsible for certifying the airworthiness of the d of all aircraft submitted for examination. In that ca he has won the regard of everybody concerned. In th there were plenty of complaints about Farnborough's n of dealing with aircraft designers, but Mr. Goodman-Cr methods have produced complete cordiality betwee Department and the whole of the Aircraft Trade.

In spite of their arduous duties he, and his able ass Mr. Dancy, have found time to act as Handicappers-G to all British Flying Meetings which have happened past six or seven years. Their success as such judged by the fact that on practically every occasion competitor, including the winners, has been convince his handicapping was unjust, and yet that handicappi consistently produced astonishingly close finishes in

In addition, Mr. Goodman-Crouch has for some year the British Technical Delegate at all meetings of the national Convention for Air Navigation.

In his new capacity Mr. Goodman-Crouch will be c a new department known as R.D.A.6 (Research Direc Aircraft), which will deal with the technical policy search, particularly in relation to Civil Aviation. And, will be pleased to learn, Mr. Dancy is also being tran to that department.

All will hope that in this new office, Mr. Goodman- will have increased opportunities of extending the v work which he has already done for British Avi remembering that a British air-worthiness certificate sponds to an "A1 at Lloyd's" certificate in shippi The organisers of the party above-mentioned pre to Mr. and Mrs. Goodman-Crouch a handsome cock-t in silver as a mark of esteem and regard.



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The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 8; Monday, 31; Tuesday, 33; Wednesday, 27; Thursday, 26; Friday, 35; Saturday, 27.

Imperial Airways Ltd.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 73, passengers 636, freight 25 tons.

Air Union:
Paris—London and return: Machines 45, passengers 185, freight 11 tons.

K.L.M.:
Amsterdam—Rotterdam—London and return: Machines 24, passengers 145, freight 6 tons.

Sabena:
Brussels—London and return: Machines, 12, passengers 60, freight 2 tons.

Deutsche Lufthansa A.G.:
Amsterdam—London and return: Machines 24, passengers 45, freight 3½ tons.

Miscellaneous:
British machines, 9, passengers 8.
Foreign machines 0, passengers 0.
Total number of trips by British Machines, 82, carrying 644 passengers. Foreign Machines, 105, carrying 435.

COMPARATIVE FIGURES.

Week ending Sept. 22:
Machines, 187; Passengers, 1,079; Crews, 356; Total personnel, 1,435.
Corresponding week, 1927:
Machines, 155; Passengers, 990; Crews, 288; Total personnel, 1,278.
Corresponding week, 1926:
Machines, 103; Passengers, 572; Crews, 136; Total personnel, 708.
Corresponding week, 1925:
Machines, 124; Passengers, 556; Crews, 163; Total personnel, 719.
Corresponding week, 1924:
Machines, 110; Passengers, 481; Crews, 132; Total personnel, 613.
Corresponding week, 1923:
Machines, 106; Passengers, 350; Crews, 162; Total personnel, 512.
Corresponding week, 1922:
Machines, 106; Passengers, 321; Crews, 190; Total personnel, 511.
Corresponding week, 1921:
Machines, 82; Passengers, 208; Crews, 105; Total personnel, 313.
Corresponding week, 1920:
Machines, 108; Passengers, 175; Crews, 132; Total personnel, 307.

Croydon Notes.

The event of the week at Croydon was undoubtedly the departure of Senor de la Cierva for Paris on the Autogiro on Tuesday morning, for many of the regular hands at the aerodrome had never before seen a machine of this type before, and scarcely believed it when they did see it.

Their incredulity looked like being justified during the process of taxying over the ground to get the rotating wings up to speed. The aerodrome surface is far from smooth, and in his progress Senor de la Cierva struck so rough a patch that one blade of the rotor flapped into contact with the rudder, and bent this important organ, as related elsewhere.

The subsequent wreck of the machine at Le Bourget, combined with the *contretemps* at Croydon seems to point to the necessity for some better means of getting the rotor up to speed than that now in use.

Apropos the state of the aerodrome, it may be recollected that when the new buildings came into use early this year complaints were rife as to the water-logged condition of the ground on the edge of the concrete-paved area outside the main building. Thanks to the dry Summer there has been no real trouble with mud, but now what threatened at one time to become a bog has turned into an area of sandy dust which is picked up and distributed over the surrounding country by the slip-stream of every machine passing over it.

The result is a very fair imitation of an Eastern dust-storm, which is singularly unpleasant for all who are involved in it. To leave open the window of an office facing the aerodrome is now to ensure that everything in that office shall be thickly overlaid with fine dust. Doubtless the mud trouble will revive as soon as the wet weather sets in.

On Friday a report was received that the incoming Luft Hansa goods machine from Cologne, due about 14.30 hours, had lost one of its landing wheels. All preparations were made to wave wheels at it and warn the pilot, the ambulance and fire engine were turned out and all available hands were
ready for the threatened emergency. However, the alar
whatever caused it—was entirely unfounded, and the mach
landed perfectly on two perfect wheels.

LIVERPOOL—BELFAST.

On Sept. 22 one of Imperial Airways' Short Calcutta fly
boats (three Bristol Jupiter engines) made a return trip f
Liverpool to Belfast carrying fifteen passengers, represe
tives of the Liverpool and Belfast authorities who are in
ested in the experimental service which is operating du
the present week.

The journey in both directions was accomplished with
untoward incident and to schedule. The passengers
reported to have found their trip unexpectedly comforta
and to be impressed by the desirability of a regular seapl
service between the two cities.

The first trip of the daily service between these two p
arranged in connection with the Liverpool Civic week,
made on Sept. 24. The Calcutta with fifteen passengers
mails was half-an-hour late leaving the Mersey, and lost
other forty minutes on the way owing to a strong head w
and reached Musgrave Channel, Belfast, over an hour late

The return trip was also made with a full load of pas
gers and passed without incident.

Mails sent by the flying-boat, posted in Liverpool at 1
hours, were delivered in Belfast at 14.00 hours, a savin
nearly a whole day over the usual method of transmiss

THE LYMPNE—OSTEND NEWSPAPER SERVICE

The service for the delivery of London morning newspa
run by the K.L.M. between Lympne and Ostend during
summer months, closed down for the season last week.

While it was in operation this service maintained the r
larity and reliability which distinguishes all K.L.M. serv
and delivered an average of five tons of papers per wee
Ostend many hours before they could have reached
place by any other method.

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craft parts, in particular interests in any patents, licences, c
sions and the like held by the said O. E. Simmonds. The subsc
(each with one share) are:—O. E. Simmonds, Holmfels, Woo
aeronautical engineer. C. F. Simmonds, Stevenage House,
Holborn Viaduct, E.C.1, solicitor. O. E. Simmonds is chairman
managing director for life. Remuneration: As fixed by the com
Solicitor: C. F. Simmonds.

PERSONAL NOTICES.

Deaths.

DE WOULF DE WYTT.—On Sept. 19, at Eastchurch, Isle of Sh
as the result of a flying accident, Athal Patrick de Woulf de
Flg. Off., R.A.F.

Mr. de Woulf de Wytt entered the R.A.F. with a S.S. com
January, 1926, and after a course of flying instruction at No. 4 I
Abu Sueir, Egypt, was posted to No. 5 (Army Co-operation)
India. He returned to England in October, 1927, and after a
at the Central Flying School he was posted to the Armamen
Gunnery School, Eastchurch. He represented Eastchurch i
Diving Championship event at the R.A.F. Swimming Association
ing on July 28.

GOODFELLOW.—On Sept. 1, at Sidmouth, following an ope
Martyn Boston, aged 4 years, beloved son of Mr. and Mrs.
Goodfellow, of Sharston Manor, Northenden, Cheshire.

WELLBY.—On Sept. 20, in a flying accident at Brooklands, Ma
Honor, youngest daughter of Mr. and Mrs. Howard Wellb
Huntington House, St. George's Hill, Weybridge, aged 22.

BLACKDEN—ROWE.—On Sept. 15, at Christ Church, Lancaster
Vyvian Quentery Blackden, Flg. Off., R.A.F., fifth son of Brig
General L. S. Blackden, C.B.E., and Mrs. Blackden, M.B.
Dorothea Mercy, elder daughter of the late Archdeacon of Roc
and Mrs. Tetley Rowe.

RAGG—MOIR.—On Sept. 17, at Holy Trinity Church, Brompton
Flt. Lt. R. L. Ragg, A.F.C., son of the late R. S. Ragg, M.A.,
Mrs. Ragg, to Margaret Moir, daughter of the late G. W. Moir
Mrs. Moir.

Marriages.

THOMAS—HORSFALL.—On Sept. 15, at Barnes Parish Church
Off. Denys S. Thomas, R.A.F., son of Mr. and Mrs. L. D. T
"Chessington," Exmouth, S. Devon, to Nancy, daughter of M
Mrs. H. M. Horsfall, Castleton Mansions, Barnes, S.W.

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THE AEROPLANE—OCT. 3, 1928.

MORE ABOUT YARMOUTH

THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXXV. No. 14. SIXPENCE WEEKLY. Registered at the G.P.O. as a Newspaper.

"AS CONFIDENT AS IS THE FALCON'S FLIGHT AGAINST A BIRD."—(SHAKSPEARE—*Richard II.*)

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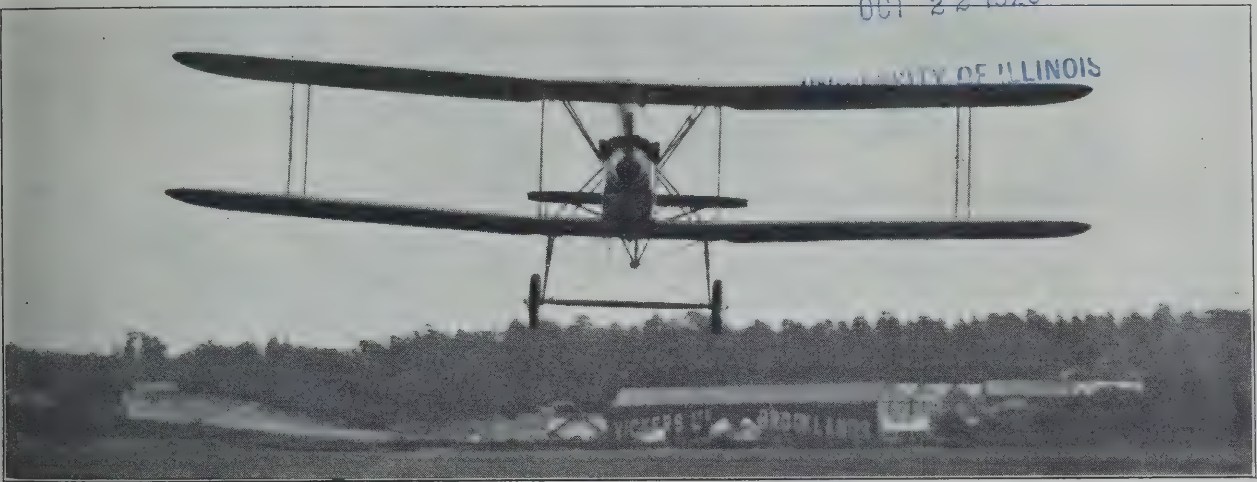

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Captain Courtney

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A.V 8

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ON A NORTH SEA AIR STATION.—II.

e Story of a North Sea Air Station,—C. F. Snowden Gamble. 446 pages. 34 photographs. 27 drawings, and a chart. The Oxford University Press. 21s. net, and from THE AEROPLANE Book Department, Cannon House, Pilgrim Street, Ludgate Circus, E.C.4.]

the notes already published on the story of a North Sea Station, which were a purely personal expression of ion coupled to a few basic facts about the book, one cated that the contents of the book would be discussed week in further detail. The first thing which demands ntion is the general scheme,—for it is a model of how a ory of any kind should be arranged.

efore the official first chapter comes an Introduction, ch amounts to what a Staff Officer might call "an appre- ion of the situation" as it was before the Royal Naval Service came into being. Then come four chapters cribing (I) how Great Yarmouth Air Station came into ng; (II) the naval manœuvres of 1913 and the part played ein by Yarmouth Air Station; (III) the growth of the ion and (IV) the events thereat during 1914 up to the reak of war.

hereafter comes (V) another appreciation of the situa- describing the state of development in the R.N.A.S. at outbreak of war, and (VI) the development of the erial German Naval Air Service up to the same time. e the reader will do well to note that all Mr. Gamble's criptions of German activities have been checked care- y by German authorities and that many of the German rations against us are described by the German airship seaplane officers who took part in or even commanded operations.

this arrangement you have the work of a sound ineer laying down as it were the bed plate, or if you like crankcase, of an engine, clearly and firmly so as to ıre that the working parts thereafter have every chance erforming properly.

THE STORY OF THE WAR.

aving absorbed all this information, and knowing all at the R.N.A.S. and its German opponents, we are then (VII) of the first months of the War at Yarmouth and I) of the activities of the station's opposite numbers in many. That gives a clear idea of everything up to the of 1914.

hen we have three chapters devoted to 1915,—(IX) what mouth did to the Germans; (X) the general development he R.N.A.S. during the year 1916, which might be called t the Admiralty did to Yarmouth, and to the Germans, (XI) what the Germans did to Yarmouth. The niralty, so far as one's personal recollections go, held a way position and strafed Yarmouth and the Germans ost equally impartially, so one agrees cordially with Mr. ble in arranging his chapters in that way.

he events of the year 1916 are similarly arranged. The ngs of Great Yarmouth (XII) precede the description II) of the famous air agitation which resulted from the ous alliance of Lord Montagu of Beaulieu, Mr. Joynson ks, M.P., and Mr. Pemberton Billing, M.P., and this ollowed according to plan by a description of the German ations (XIV).

he year 1917 is similarly divided. We have (XV) the vities of Yarmouth, (XVI) a description of the political strategic influences which produced the Royal Air e, and a review of technical development in the R.N.A.S. ng the year, followed as usual by what our German onents did (XVII).

he sequence is broken thereafter by a description (XVIII) the German submarine campaign against mercantile ping, and (XIX) the development of the Zeppelin air- and the Imperial German Airship Service during the . These give a very clear understanding of the chief ences which moved, modified or developed the work of R.N.A.S. in the last phase of the War.

these chapters there are masses of information from man sources, both personal and official, which have cer- ly never been made available in any other publication. They should be of immense value to Staff Officers in all three Services as indicating lines of thought and of activity for future wars, and as giving an opportunity of studying the psychology of those who fought against us, and will in future wars almost certainly fight alongside us.

The last three chapters of the book deal with (XX) the work at Yarmouth during 1918 up to the formation of the R.A.F., (XXI) the process of amalgamation between the R.N.A.S. and the R.F.C. into the Royal Air Force, and (XXII) the doings at Yarmouth by the Royal Air Force until the Armistice.

By the time the reader has reached the end of the last chapter there is little left for him to learn about the conduct of war at sea as waged from a coast-defence station. And, though the axiom still holds that we approach every new war as novices, anybody who has studied the book carefully will have a very good working idea of the things which are most important to avoid and of many things which must certainly be done in the next war.

A MATTER OF STYLE.

In this history of Yarmouth there is no attempt at fine writing. That is one of its virtues. It is written in very plain homely English. Yet here and there one meets passages which as literature reach a very high level, and are worthy of the history with which they deal. Of such are the very first and the very last passages in the book, though there are many as good in between.

The first is particularly worth quoting because it explains so simply so much which many of us who were then very young and enthusiastic failed to understand in the earliest days of flying. This first passage reads thuswise:—

> 'The "Articles of War" state that on the Royal Navy "under the good Providence of God, the wealth, safety and strength of the Kingdom chiefly depend," thus defining the responsibility of the Senior Service. It is, therefore, natural for those on whom devolves the duty of maintaining the Navy as "a safeguard unto our most gracious Sovereign Lord . . . . and his Dominions, and a security for such as pass upon the seas upon their lawful occasions" to observe a cautious attitude towards any untried courses and new devices.'

Here you have the justification for the Admiralty's lack of enthusiasm in the beginning of flying. But the Admiralty's policy was sound, as is shown in this passage:—

> 'It cannot be said that the Navy welcomed aviation—it did not—Englishmen as a rule do not welcome innovation—but it made plain the conditions that must be satisfied by aircraft if such were to be employed for naval purposes. It gave help and—in the majority of instances—fair play and, may it be said, at times showed considerable patience and indulgence.'

The immediate results of this policy are told simply and clearly and the reader will appreciate how much Naval Aviation, like other branches of the Service, owes to Admiral Sir John Fisher and his friends in the "Fish Pond," as his particular band of followers, or clique, in the Navy was commonly called by those who were not in it. Admiral Fisher is credited with having written in a Visitors' Book 'Favouritism is the essence of efficiency.'—Which is true, in that a man who is efficient will only favour those who are efficient.

One of the few mistakes in the book occurs in this section. In the list of the personnel of the special branch formed at the Admiralty to handle the building of the first naval airship appears the name of Captain Oliver Schwann, R.N. This officer, now Air Vice-Marshal Sir Oliver Swann, K.C.B., C.B.E., was then only a Commander. The point is of some importance because the appointment of a Post Captain to be Assistant Inspecting Captain of Aircraft to Captain Murray Sueter, R.N., who was the head of the branch, would indicate that these small beginnings were bigger than in fact they were.

In this introductory chapter the international outlook of the period on air navigation is very well indicated. And the soundness of our official views as to anti-aircraft defence is made clear.

Those Early Days.

The Navy's first attempts at flying, when Lieutenants Samson, Gregory and Longmore, R.N., and Gerrard, R.M.L.I., were appointed to learn to fly at Eastchurch on biplanes built by Short Brothers and lent by Mr. Frank McClean, are told afresh with several fresh sidelights. Mr. George B. Cockburn, who acted as Honorary Instructor for some six months entirely at his own expense, is by a misprint made into Mr. C. B. Cockburn, but doubtless he will forgive those responsible.

The description of the stock of Short machines acquired by the Admiralty immediately thereafter is valuable. Old timers will be pleased to be reminded of 'No. 39, known as "the vacuum cleaner" because the draught was said "to pull the hairs out of a fur coat".'

How farsighted were the people in the Air Department at the Admiralty in those days may be judged by an official statement of the functions of naval aviation in time of war. This stated that naval aviators would be required:

'(*a*) To ascertain which vessels were in enemy harbours and which could not be seen from blockading ships.

(*b*) To ascend from a floating base and ascertain if any of the enemy's vessels be in sight. (This remark is of interest, as it contains the germ of the future aircraft-carrier.)

(*c*) To locate submarines.

(*d*) To detect minefields. (Experiments had been conducted some months previously in this connection from Eastchurch over the Thames Estuary, but owing to the large amount of mud in suspension in the water they had not met with much success.)

(*e*) To direct the fire of ships' guns.'

Barring the introduction of torpedo machines and of fleet fighters, there is little else in the duties of the Fleet Air Arm to-day. Furthermore the attention of readers of the book is particularly directed to the extract on page 17 from the 'Memorandum on Naval and Military Aviation, April 11, 1912,' which shows clearly how sound were the views of those in authority even at that early time.

One is pleased to find recorded in this introductory chapter that 'the onomatopœic word "crash," used in the literature of aviation, was coined by Captain J. D. B. Fulton of the Royal Field Artillery and Royal Flying Corps (who was originally one of the officers of the Air Battalion of the Corps of Royal Engineers). This officer also devised an instrument called a "Crashometer," which made a record of the quality of the pupil's landing in case he (Captain Fulton) was not there to witness it.'

The Beginnings of Yarmouth.

Apparently the choice of the site for the Yarmouth Air Station was originally due to Lieut. l'Estrange Malone, R.N., who, after a useful and distinguished career in the R.N.A.S. and R.A.F. left the Service after the War, unfortunately took to politics, was imprisoned for a political offence connected with Bolshevik doctrines, was deprived of his rank as a retired officer and is now a Socialist M.P. for Northampton.

The story of the negotiations, and the wording of the original agreement, between the Town Council of Yarmouth and the Admiralty for the site which ultimately became the Air Station and Aerodrome makes amusing reading.

One has tender recollections of Yarmouth Air Station in those early days, particularly during the manœuvres of 1913, when it was commanded by the late Lieut. Reginald Gregory, R.N., who had under him Lieuts. C. L. Courtney and J. W. Seddon, R.N., Sub-Lieut. F. E. T. Hewlett, R.N., and Lieut. T. S. Cresswell, R.M.L.I. (who was killed in an accident off Calshot before the War), and of the feared loss at sea, and subsequent rescue, of Sub-Lieut. Hewlett. They were strenuous and very amusing times.

Mr. Gamble tells in considerable detail the story of these first naval manœuvres in which aircraft were used. The work of the aircraft is well worth studying in the light of what is done to-day. Incidentally wireless was used with considerable success even then.

Another interesting section in this chapter is made of quotations from two letters in *The Times* from a German officer signing himself 'Colonel Donner und Blitzen' which at any rate give an idea of the views of one section of German Service people at the time.

Old hands in the Naval Air Service will take a fierce joy in the description of the development of the Yarmouth Air Station in Chapter IV. The photographs of No. 69 Maurice Farman Longhorn and No. 20 Short seaplane equipped with the Gregory-Riley-White wheel float attachment for launching (a kind of one-way amphibian affair) will bring back memories of the 'them was the days' kind.

This part of the book includes quotations from The Aeroplane of the period, which show how closely this paper even then was in touch with Service doings. In fact th ports from the Service air stations of that day were no like the Club reports of to-day,—likewise the beginnin greater things.

Hereabouts are set forth the new substantive ranks i Royal Navy which were created for the special benefit o R.N.A.S. Few people now remember that though Commander, Squadron Commander and Flight Comma were merely verbal descriptions in the R.F.C., they actual ranks in the Royal Navy, and that those few p who happened to retire from the R.N.A.S. before the R came into being are still entitled to use those titles. H Squadron Commander James Bird of the Supermarine pany, who has been responsible for so much of our pro in seagoing aircraft.

The Beginning of War.

The story of the part played by the newly-formed R.N in the great Naval Review of July 18, 1914, which ultim developed into the mobilisation of the Fleet for war, is told. The Fleet instead of being dispersed after the Re was kept 'in being' thanks to the high intelligence of Winston Churchill, who was then First Lord of the Admi and Prince Louis of Battenberg, who was First Sea Lo and thus the German Fleet was bottled in its harbours before war was declared.

In this section is a picture which deserves to be histo It shows Commander Samson, R.N., flying a Short sea over H.M.S. *Lion* during the Review. The two craft r sented at that period the very last word in naval mater

Close to it is one of Mr. Leonard Bridgman's best ske showing the old Short gun-carrier,—a pusher float bi in which a gallant young officer named Clark-Hall us imperil his life by firing from the bows a gun of such c as (alleged) to bring the machine to a standstill in the

The discourse on the state of development at the break of war begins with a catalogue of all the aircraf engines pertaining to the Navy at the time. It make tertaining reading. Many a Group Captain, Air Comm or Air Vice-Marshal of to-day will probably recognise in list machines which will bring back sometimes joyou frequently painful memories of his early days in the air. many even of junior rank will remember that 80 h.p. D dussin monoplane which the late, and much-beloved Commodore Groves used to fly when he was a Wing mander in the R.N.A.S. It actually survived until 19

This chapter (V) also contains very valuable inform about the armament of the R.N.A.S. at the period. W these days ever hears of the Marten Hale rifle grenade missile from aircraft, or of the Ranken dart?

German Development.

The description of the development of the Imperial man Naval Air Service up to the outbreak of war, follows, is a peculiarly valuable piece of history. Gamble goes as far back as 1884, when an experim division of airship troops existed, for the beginning o history. He does not concern himself here with the h of the Zeppelin airship, for which he reserves a chapt itself later in the book. He merely assumes the exis of Zeppelins and gives a very clear account of how th ship and aeroplane services of the German Navy wer veloped side by side.

In this chapter the photograph of the Zeppelin L. only airship in the German Naval Airship Service a outbreak of war, deserves its place among historic pic

There is much interest also in seeing the precise di tion of all German airships at the outbreak of war. the catalogue of the types of aeroplanes owned by the man Navy is highly illuminating,—despite the fact Albatros is erroneously spelt with a double S.

Early War Work.

The story of the actual War opens on page 99 of the and an excellent word-picture is given of the work o personnel by two examples of daily reports of sea patrols, as for example Squadron-Commander Courtney port of a flight with Petty Officer Telegraphist Hend well-known character) as passenger.—'4.30 p.m. Yarmouth. 4.31 p.m. Passed a T.B.D. and signalled etc.

Mr. Gamble evidently had no excuse for including i book the famous report of a seaplane observer on his first flight somewhat as follows: '2.30 p.m. Took off Felixstowe. 2.31 p.m. Passed Harwich. 2.35 Passed D court. 2.36 p.m. Passed a seagull flying backwards'— never having realised before that even the slow seap of the time were faster than the best gulls.

Reminiscences.

Some of the most interesting portions of this ch are the reminiscences of certain Chief Petty Office Yarmouth at the time about the machines which they

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to tend and their experiences with newly-enlisted mechanics and strange armament.

The regular C.P.O., R.N., and the Engine-Room Artificer of the period were just about as well educated and as intelligent as anybody in the Service, and seeing things from a point of view quite different from that of their officers their reminiscences are singularly entertaining. Mr. Gamble has been fortunate in getting a good many such reminiscences, which appear at intervals throughout the book.

Much of the interest of the book in fact depends on his skilfully selected extracts from letters of officers and ratings at Yarmouth telling of their individual outlooks and experiences throughout the War. The task of selection must have been heartbreaking for he had enough material to have filled the book twice over with this material and nothing else. And so much as is published is so informative or so funny that one laments the rest which had to be scrapped.

One gets all sorts of outlooks. There is that of the war-worn, weary and disgusted pilot after a fruitless patrol; there is that of the tired but triumphant warrior returned from a successful battle with an airship or enemy seaplanes; there is that of the experienced and slightly cynical Warrant Officer in relation to the terrible material, human and mechanical, on which he had to work. Through these letters one gets a wonderful insight into the psychology of the R.N.A.S.

The German Story.

Chapter VII dealing with the activities of the German Air Stations opposed to Great Yarmouth is equally interesting. The reader will see with surprise that the German Commanding Officer at the Zeebrugge Seaplane Station rejoiced in the name of von Arnauld de la Perrière.

In those early days of the War even the best of British officers with German names were viewed with suspicion in this country. It was not till considerably later that Service aviators applied to be appointed to squadrons commanded by officers with such names as Albrecht or von Pöllnitz because anything which seemed German had come to be regarded as necessarily efficient.

When one comes to read these German accounts of their operations against Yarmouth one is struck by their similarity to our own outlook and experiences. There were the same complaints of insufficient and inefficient equipment, the same lamentations about shortness of men and material, about unreliability of engines and untrustworthy aircraft, and about bombs that went off when they were not supposed to do so, or did not go off when required. It is only since the War that we have discovered that on pretty well all counts the German Fighting Services and our own were just about 50-50.

To go through the book chapter by chapter would take up far too much space. At the opening of these notes one has indicated the contents of each chapter. And one can only recommend the readers of The Aeroplane to study the book themselves.

The author has made no effort to emphasise individual heroism or personal perils, but in the ordinary tale of the Station's work individual examples of gallantry could not be ignored, nor could individual stories of extraordinary endurance and almost miraculous escapes be omitted.

Thus we have the story of one Cripps, who, landing a B.E. in the dark and afraid to drop his bombs lest he should hit a house, flew his machine down till his altimeter showed 100 feet above sea-level, stepped out onto a wing, counted six and then jumped, only to fall a few feet into soft mud unhurt. Even the machine was very little damaged.

And we have the story of an officer and man whose seaplane was wrecked after a forced alighting, and spent four days and nights hanging onto one float which had come adrift from the wreck.

Then we have the story of how Flight Commander Vincent Nicholl and Flight Lieutenant Hards, on two BE2cs., chased a Zeppelin for sixty-five miles out to sea without any prospect of being saved if their engines let them down.

Also there is the classic story of Squadron Commander Nicholl, as he had become, with Flight Lieut. Leckie, in a flying-boat, rescuing the crew of a land machine which had come down in the middle of the North Sea, and spending days and nights on the water before they were picked up, thanks to the intelligence of a mere civilian in uniform who calculated their position accurately from a pigeon-borne message after the naval navigators had failed to find the flying-boat.

Actually the most spectacular work of the Yarmouth Station was chasing Zeppelins. The descriptions of the various anti-Zeppelin patrols, successful and unsuccessful, the attacks on Zeppelins which failed and succeeded, the risks that were run, the bitter disappointment and the elation at success are enough to make a book in themselves.

The exploits, in particular, of Egbert Cadbury (in his various ranks), of Robert Leckie, of Galpin, Culley, Fane and

**AFTER A NORTH SEA ADVENTURE.—Flt.
Trewin, Sqd. Comm. Nicholl, Flt. Lt. Leckie and
Lt. Gilligan on H.M.S. "Halcyon," after their res**

others, make reading for a book of adventure. Yet
are plain history, and are told as such without adjectiva
broidery. And they are all the more impressive beca
Mr. Gamble's straightforward style.

The heroism of the German airship crews is show
be as great as that of our own people. Mr. Gamble
full credit to the airship commanders, from the great C
Strasser downwards. At the end of his story one sees
know and respect these officers, and the officers of th
plane stations opposed to us, as well as if they were ou
people.

From one of the early stories, of a sail-maker
Wundrack who crept up into the top of a badly s
Zeppelin amid all the escaping gas to stop the holes
gas-bags, to the wonderful exhibition of skill and pr
Captain Heine who surrendered his ship after the Arm
by driving her, without help from the ground, prac
inside our shed at Pulham one finds nothing but
appreciation of our enemies.

That represents truly the spirit which existed amon
majority of our fighting men during the War. Prac
the only place in which one could express admiration
Germans during the War was with the Fleet at sea, wi
Army in the field or at Air Service Stations.

The Air Agitation.

The story of the famous, or infamous, air agitation
is told with accuracy and without prejudice in Chapter
From that agitation sprang the Air Board from whic
Air Ministry developed.

Mr. Gamble, not being tied down as is an official hist
has naturally been able to write quite freely on this su
He has even been able to be fair to the much-malig
eccentric, Mr. Pemberton Billing, who was the origina
the agitation. His scheme for a separate Air Service w
different in essentials from that which exists to-day.
particularly commends this chapter to those in sea
historical enlightenment.

Another piece of history which is little known
present generation of aviators appears in the same c
that is, the origin of the flying-boat as we know i
Proper credit is given to Mr. Glenn Curtiss (who a
with only one N instead of two), to the late John
R.N., and to Lieutenants 'Jack' Towers, 'Pat' Bel
and 'Dick' Richardson, U.S.N., all happily with
day. Nowhere else has one read such a clear statem
the development of the 'Small America' and '
America,' later known as the H.12. type, and the Feli
'F' type boats from which we have developed toda
Southamptons and Calcuttas and Irises.

Engineering Value.

Engineers in the Air Force and out of it will find
much enlightenment as will fighting people or civilia
ticians. In its proper place in the history of each yea
is always a section devoted to technical development

Fairey "III F." General Purpose Type.

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experiences with different types of engines, guns, wireless gear and so forth. And every here and there there are extracts from letters from engineer officers who served at Great Yarmouth describing their experiences, and various dodges which were used to get over mechanical difficulties.

The engineer people will be particularly interested in the story, told one believes for the first time, of how the Constantinesco gun-gear came into being. During its introduction to the Service it passed through the hands of three officers whose names are now very well known,—Lieut.-Colonel Caddell, now of Vickers Ltd., Major Hopkinson, a great scientist who was unfortunately killed during the War, and Captain Blacker of the Guides.

Limitations of space prevent one from saying anything here of the numerous actions against Zeppelins and against German seaplanes over the North Sea. And even if there were space, one would be unfair both to the book and to its readers in telling even one of these stories here. One can only recommend that they should be read in the book itself, for they make just about the finest reading of any war adventures yet told.

The Illustrations.

At this point one must really cease from saying any more about what is in the book and leave people to read for themselves. Besides Mr. Bridgman's sketches of historical types of aircraft, the actual photographs are as remarkab everything else.

The photograph taken from a German seaplane o Coastal Airship C.27. falling in flames is one of the striking, if one of the grimmest, pictures yet publi The picture of one of our flying-boats burning on the after being shot down would be almost as grim, if it not for the comic element in the story which tells abo The picture taken from the air of German seaplanes capt a Dutch sailing barge is in a different way as arresting

The publication of the portraits of the great Ca Strasser and of Oberleutnant Christiansen, besides be tribute to our enemies, shows us what a fine type of our aviators had to meet. The pictures of Sopwith s seaters and big flying-boats on barges which were towe into the North Sea so as to give the aircraft greater of useful action show a little-known side of the war.

Among the most interesting records in the book is a plete table, covering 4½ pages, of all the airships used the War 1914-18 by the Imperial German Naval Airshi vice together with the number of war flights made by ship, the names of the commanders, and the fates ships and crews.

In fact in every way the book combines at once th of a really good novel with the informative value of h as it should be written.—C. G. G.

THE FOKKER-AVRO DEAL.

One of the most interesting announcements affecting the Aircraft Trade which has appeared for a long time is the statement that A. V. Roe and Co. Ltd., which is now practically the property of Siddeley Proprietary Ltd., has arranged with the Fokker Aircraft Company in Holland to manufacture and sell the Fokker FVII-3m design in Great Britain, the Irish Free State, and all British Dominions and Colonies with the exception of Canada.

This arrangement is evidence of the astuteness and foresight of Mr. J. D. Siddeley, and it should prove a very salutary lesson to our aircraft constructors in general and our chief designers in particular. One hopes that it will provide that shock to their self-esteem which is necessary to produce accelerated progress in this country.

For a very long time The Aeroplane has been preaching to the whole Aircraft Industry the need for the production of passenger-carrying aircraft if we are to capture the World's over-seas markets. A few firms have set about producing such machines, but they seem to have been so busy on more immediately paying propositions that instead of turning out aircraft of the types which the World's markets want, at the rate of about six weeks per new type (which is definitely possible given the necessary drive and urgency) they have allowed the production of their new types to drift.

A. V. Roe and Co. Ltd. themselves have in fact had a design for a cabin monoplane in hand for several months. A picture of it as it would have been had it ever been finished appeared in The Aeroplane of March 7, 1928. Unfortunately the Works at Hamble have been more or less forced by the Air Ministry during the past year or two to produce very interesting experimental machines for the Royal Air Force, none of which, unfortunately, though very fine aeroplanes, have brought Air Ministry production contracts. And so what might have been a highly marketable civil product, and in fact one which might have made this Fokker arrangement unnecessary, had to be shelved.

This seems to teach us that putting one's trust in Air Ministries is just as bad as putting one's trust in Princes, and that by far the best policy is to find out what the World's markets want and make it, regardless of everything else. After all that is only what any manufacturer in any business has to do all his life. He backs his own judgment.

Mr. Siddeley has shown in this Fokker deal that business acumen which has placed him in the front rank of British business men. His success is the more remarkable because he has built up his position in such chancy businesses as the cycle trade and motor trade instead of in some more prosaic and stable industry such as soap or sausages.

It is a curious fact throughout British Industrial History that when we have developed a certain trade to a certain point we always seem to have to go abroad for our next step forward. And we do this in spite of the fact that among our junior men there are plenty of brains which are far in advance of the foreigners to whom we go for our improvements. In due course, those younger and brighter brains improve on our imported designs and ultimately we arrive at having the best products in the World.

History will repeat itself, and thus through Mr. Anthony Fokker we shall arrive at better and better British aircraft. One can only hope that other British firms will follow Mr. Siddeley's example and will import other promising designs on which in turn they also will improve.—C. G. G.

THE CONTROL OF FRENCH AVIATI

The disagreement between M. Laurent Eynac, the appointed French Air Minister, and M. Painlevé, Minis War, and M. Leygues, Minister of Marine, concernin extent of the Air Minister's control of Service Aviatic now been settled, for the time being, by a compromise. has been arranged, so report says, by M. Poincaré, Pre of the French Republic.

Under this compromise all Votes for aviation, Mi Naval, or Civil, will appear on the Budget of the Mi for Air. These Votes will include provision for *mat* which has not been seriously disputed—and also for S *personnel*—which the Army and Navy Authorities ha sired to keep under their own exclusive control.

The compromise lies in the fact that the *personne* provided for in the Air Votes is to be at the disposal Ministries of War and of Marine, and that althoug Minister for Air will take responsibility for the cost such *personnel* the Services will be in a position larg dictate what *personnel* is to be provided and how th to be employed.

Politically the arrangement seems to be a draw, hea favour of M. Laurent Eynac. Practically it seems lik ensure all the drawbacks alleged to accompany a se Air Force with no compensating advantages except tho may accrue to the French Aircraft Industry.

THE ALLEGED FRANCO-BRITISH AGREEMENT.

The rumours which have been so current in the P all countries—more particularly Italy—during the pa weeks as to the existence of a secret agreement betw British and French Governments for the co-operation two countries in the matter of common measures for Defence have led to the publication by the British Office of the following statement :—

> 'There is no agreement or understanding of an with France in regard to aerial matters that has n published, and all rumours to the contrary are untrue.'

That these rumours owed their origin to some political interest must have been obvious to all int readers thereof. The precise interested quarters from they originated is however at present in some doubt.

THE ROYAL AERONAUTICAL SOCI

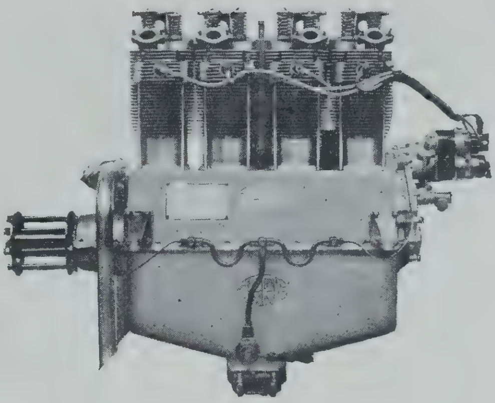
The following lectures have been arranged by the Aeronautical Society for the first half of the Session All lectures will be held in the theatre of the Royal of Arts, 18, John Street, Adelphi, W.C.2, at 6.30 p. cept the joint meeting with the Institution of Aut Engineers, which will take place at 7.45 p.m. :—

Oct. 4.—Mr. J. D. North, F.R.Ae.S., M.I.Ae.E., The Development of the Aeroplane. Oct. 18.—Mr. H. Sutton, M.S Alloys and their use in Aircraft. (With special reference rosion Problems.)

Nov. 1.—Mr. W. D. Douglas, A.F.R.Ae.S., and Miss C. B. The Testing of Adhesives for Timber. Nov. 8.—Wing Cdr. T. Browne-Cave, C.B.E., F.R.Ae.S., Machinery Installation of R. 15.—Mr. R. J. Penn, A.M.I.Mech.E., Aeroplane Engines in (With special reference to Carburation.) (Joint Meeting with tion of Automobile Engineers). Nov. 22.—Major F. M. F.R.Ae.S., Weight of Aircraft. (With special reference to on size.) Nov. 29.—Mr. F. Sigrist, A.F.R.Ae.S., Production

Dec. 6.—Capt. A. P. Thurston, D.S.c., F.R.Ae.S., M.I.Ae.E. of Aeroplanes by Alulas.

"Cirrus"



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st KING'S CUP AIR RACE, 1927. 1st SIDDELEY TROPHY, 1928.
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A FORECAST OF THE BERLIN SHOW.

The Berlin Aero Show will open on Sunday next, Oct. 7, and judging by the preliminary notices it is likely to be a big affair. One wishes every success to the *Reichsverband der Deutschen Luftfahrt-Industrie* (National Association of German Airfaring Industry). The show is limited to Civil Aircraft by the Treaty of Versailles.

The German exhibits of aircraft and engines should be quite interesting. Among the light aircraft will be found the Sausewind designed by the late Herr Bäumer, and still produced by the firm which perpetuates his name; the Klemm L.20 and L.25; the Müller-Griesheim G.M.G.2; the Espenlaub 14 two-seater, and the Meteor 2 two-seater biplane.

The school and air-traffic machines include the Raab-Katzenstein Schwalbe, Pelikan and Grasmücke; the B.F.W. Flamingo and B.F.W.21 and an improved Flamingo type, the B.F.W.M.20; the Arado transport machine and a two-seater sports machine C.S.2; the Focke-Wulf Möwe A.17a and the Habicht; the Heinkel H.E.10 and H.D.22; the Albatros Ass and the 73a.

The three makers of giant machines will show the Dornier four-engined Superwal and the improved Delphin; the latest and biggest Rohrbach, the Romar; and the Junkers G.31, the W.33 and the F.13.

In addition there will be shown all kinds of models and testing apparatus.

The French exhibit will include a Farman 180, the "Flying Bar," a type 190 four-seater; a Wibault all-metal machine; the Breguet XIX of Costes and le Brix; a Bleriot eight-seater limousine; a Potez eight-seater; a Nieuport; and a new Latécoère flying-boat.

Czechoslovakia will be represented by the Avia and Aero firms.

Italy will be represented by a Caproni and a Savoia.

Belgium's representatives will be Sabca, Renard, and Stampe et Vertongen.

Holland will have a Fokker F.VII and the Koolhoven F.K.41.

Among the German motors shown will be the B.M.W., Siemens, Daimler, Argus and Junkers.

France will have the Gnôme-et-Rhône, Hispano-Suiza, Renault, Salmson and Lorraine.

Czechoslovakia will have the Skoda and Walter.

Italy will have the Isotta.

Belgium will have the Renard.

The British exhibit will be as follows :—

A. V. Roe and Co. Ltd. will show two standard Avians, one with a Mark II Cirrus and the other with a Mark II Genet.

The De Havilland Company will show a complete Gipsy Moth (Gipsy engine) specially show-finished in cream and lined in red. Also there will be a float undercarriage with floats by Short Brothers and an undercarriage with a pair of skis. In addition there will be D.H. accessories such as telephones, telescopic clocks, portable tail trolleys, wheel jacks, tethering pickets and aerobatic harness. Also the De Havilland Co. will show a Williamson Eagle Aircraft Camera.

Handley Page Ltd. will show a De Havilland Moth with Handley Page Slots. Also there will be a small model aeroplane fitted with slots placed in front of an electric fan so that the action of the slots can be studied.

The Bristol Aeroplane Co. Ltd. will show Jupiter engines.

Armstrong Siddeley Motors Ltd. will show their whole range of Jaguar, Lynx, Mongoose and Genet engines.

Rolls-Royce Ltd. will show a standard "F" type aero-engine, which is the very latest development of the famous Rolls-Royce Falcon.

Palmer Tyre Ltd. will show a complete line of their famous wheels and tyres, and wheels fitted with brake equipment in accord with the latest developments in aircraft.

A.D.C. Aircraft Ltd. will show a Cirrus Mark II and a Cirrus Mark III and an A.D.C. Nimbus.

The British Russell Parachute Co. Ltd. will show three Russell Lobe parachutes with their full equipment.

The Gloster Aircraft Co. Ltd. will show a Gloster Hele-Shaw Variable Pitch Airscrew. This will be shown rotating at about 200 r.p.m. so that the variation of pitch may be studied on the spot.

Imperial Airways Ltd. will show a full-size model of an Argosy cabin fitted up with buffet and lay figures.

D. Napier and Son Ltd. will show a Series XI Lion of 570 h.p.

The Blackburn Aeroplane and Motor Co. Ltd. will show a complete Bluebird, and a seaplane float undercarriage.

Henry Hughes and Sons Ltd. will show compasses and other aircraft instruments.

A.B.C. Motors Ltd. will show a Hornet engine on the stand of their Berlin Agent,—Autoflug,—in the German Section.

S. Smith and Sons Ltd., will show aircraft instrument the stand of their Berlin Agents,—Deco, G.m.b.H.

C. C. Wakefield will show oils on the Deco stand.

The Irving Air Chute will be shown on the Aut stand.

All the aircraft firms will, in addition, show models photographs of various types which they make but are showing.

A very interesting sub-section of the British section be that organised by the Air Ministry in conjunction the Royal Aeronautical Society as a contribution to the torical Section of the Exhibition. This will afford to British Nation an opportunity of demonstrating to our fri in Germany and to Continental Europe in general the of British aeronautical development from the earliest For this section much credit is due to Col. the Mast Sempill (Chairman of the Royal Aeronautical Society), M Villiers of the Air Ministry, and Mr. Claude Taylor of Department of Overseas Trade.

To make this exhibit of more than usual value the Aeronautical Society, the oldest institution of its kind i World, have very wisely enlisted the help of Mr. J. Hodgson, the author of that historical work "A Hi of Aeronautics in Great Britain," which deals with nautics in Great Britain from the very beginning unti time when flying began, and for it Mr. Hodgson has coll documents and pictures the value of which cannot pos be estimated. For example, it includes much of the ori work of Sir George Cayley, who made successful practica periments with aeroplanes over 120 years ago. These able manuscripts have been lent by Sir Kenelm Cayley descendant of Sir George. There are also personal relics records of the early British experimenters with balloons of the earliest actual flyers in this country.

The significance of the whole exhibit is vastly increas the loan from the Air Ministry of a remarkable and exte collection of aeroplane models showing practically type of British aircraft.

It is, of course, regrettable that so few British aircraft be shown compared with the numbers exhibited by fo nations. But such exhibits as we shall have at Berlin at any rate represent the best British design and work ship. And the fact that they are there is witness to the prise of their makers.—C. G. G.

SAXONY AND THE LUFT HANSA.

According to *The Times'* Berlin correspondent, the *Deu Luft Hansa A.G.* has ceased to operate all its servic Saxony as from Sept. 25, because the Government of Sa has refused to continue payment of its share of the a subsidies.

This is the outcome of the abandonment by the Luft of the aerodrome of Mockau in favour of that at Sche on the ground that Mockau is unsuitable for present-da

Mockau is on the outskirts of Leipzig, whereas Sch is nearly midway between Leipzic and Halle, and serves centres. It is however in Prussian and not Saxon ter and it is understood that the municipality of Hal Prussia is largely responsible for its construction. Saxon susceptibilities have been ruffled.

This ruffling has been accentuated by the refusal authorities of the Reich to authorise the running of a s from Mockau to Berlin by the North Bavarian Air Tra Co., a firm independent of Luft Hansa, which still between Bavaria and Mockau, on the ground that the Hansa services from Scheuditz were adequate.

A LUFT HANSA MISHAP.

The Junkers G.31 monoplane (three Jupiter engines) ing the name *Deutschland* is reported to have been pletely destroyed on Sept. 25. Carrying eight pass and a crew of four, it was making a trip from Paris to Shortly after passing Cologne the pilot decided to la Arnsberg as one engine was not running satisfactorily.

Immediately on landing smoke was seen issuing fr faulty engine, and the passengers and crew were onl able to get out before the whole machine was on fire.

Press reports allege that the machine was redu ashes. This, though improbable, is by no means imp for some aluminium alloys, when well alight, burn like magnesium wires which are, or used to be, used b tographers. This is especially likely when the alloy the form of thin sheet. And one has been told that it quickly and fiercely, whereas doped fabric fries or smo

The G31 was the largest of German aircraft, specia signed for long-distance passenger transport, and much interest during the past Summer when it pa or three visits to Croydon, partly because of its high but even more because of its luxurious accommodati passengers. The general belief is that the type was in for the proposed Berlin-Pekin service.

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THE ROYAL AIR FORCE.

The London Gazette.

September 25.

Royal Air Force.

General Duties Branch.—The following are granted S.S. comns. as Plt. Offs. on probation with effect from and with seniority (Sept. 14) :—A. G. Adnams; A. F. P. Anning (Lt., 69th Bde., R.A., T.A.); A. R. Armstrong; J. F. Ballin; A. C. Baber; J. E. Beynon (Lt., Essex Regt., T.A.); B. A. Blythe; A. L. Brain; C. M. D. Chambers; C. M. Champion de Crespigny; G. H. Clarke; H. R. Collins; R. G. Cruickshank; E. W. Downing; H. A. Fenton; K. R. Garle; L. I. Gibson; I. C. Guest; F. N. Hemphill; H. R. Hughes-Hallett; E. Ions; A. E. Louks; D. S. McDougall; F. A. McNeill; C. C. C. Manson; G. O. St. J. Morris; M. P. O'Reilly; K. W. Pell (2nd Lt., R.W. Kent Regt., T.A.); A. F. Powell; G. C. Shirtcliffe; C. Ray; F. Read; R. A. R. Robinson; J. D. Roden; L. P. Rowley; F. W. H. Russell; D. F. Satchwell; J. S. Shakespeare; V. C. F. Streatfeild; L. P. Thomas. Plt. Off. G. Selk is promoted to the rank of Flg. Off. (Oct. 26).

The following Plt. Offs. on probation are confirmed in rank :—C. K. Turner (Aug. 31); J. C. K. Rogers, J. E. Markby, H. G. Hicks, J. C. B. Tinling, J. B. Veal, A. D. Bennett, J. W. Smith, P. H. Smith, W. D. J. Michie, H. L. Piper, C. H. Appleton, R. W. K. Stevens, L. V. Bennett, J. A. Greenshields, C. L. Myers, M. C. Collins, C. A. Pearson, P. F. Luxton, D. M. Harrison, A. Le R. S. Upton (Sept. 2).

Flt. Lt. F. Carpenter is placed on the retired list at his own request (Sept. 22). The following are transferred to the Reserve :—Class A.—Flg. Off. C. B. Wilson (Sept. 18); Flg. Off. L. H. Ross (Sept. 15) (substituted for the notification in the *Gazette* of Sept. 18). Class C.—Flt. Lt. R. E. H. Allen (Sept. 12).

The S.S. comns. of the following Plt. Offs. on probation are terminated on cessation of duty :—C. R. Shillingford (Sept. 15); G. R. Chameroy (Sept. 25); P. B. T. Rowland (Sept. 26). Lt. E. B. Carnduff, R.N., Flg. Off., R.A.F., ceases to be attached on return to Naval duty (July 28).

Memorandum.—The permission granted to Sec. Lt. A. C. J. Payne, M.M., to retain his rank is withdrawn on his enlistment in the Supplementary Reserve (Aug. 17).

Reserve of Air Force Officers.

General Duties Branch.—The following Plt. Offs. are promoted to the rank of Flg. Off. :—O. F. Maclaren, L. R. Stooke (Sept. 21); B. J. Apthorpe Webb (Sept. 22). Plt. Off. on probation E. Rea is confirmed in rank (Aug. 11). Flg. Off. D. P. Cameron, M.B.E., is transferred from Class C to Class A (Sept. 10); Plt. Off. J. H. M. Smith is transferred from Class AA to Class C (Sept. 22).

The following Flg. Offs. relinquish their comns. on completion of service :—G. R. Schooling (Sept. 16); P. Colbeck, M.B.E. (Sept. 17). Flg. Off. E. R. Stafford relinquishes his comn. on completion of service and is permitted to retain his rank (Sept. 2).

Plt. Off. E. J. Brighton resigns his comn. on appointment to a S.S. comn. (Aug. 23); the comn. of Plt. Off. on probation L. L. J. Davies is terminated on cessation of duty (Sept. 1).

Appointments.

Week ending Oct. 1.

General Duties Branch.—Flight Lieutenants G. H. Martingell, A.F.C., to C.F.S., Wittering, 2/10. E. C. Delamain, M.C., to No. 11 Sqdn., Netheravon, 5/10. F. H. Laurence, M.C., to No. 480 Flight, Ca 15/8. G. E. Ranson, to R.A.F. Base, Calshot, 1/10. R. Harrison, I to No. 2 F.T.S., Digby, 11/10. J. Duminy, to M.A.E.E., Felix 18/9. R. E. Meek, to H.M.S. *Furious*, 1/10. J. D. S. Denhol H.Q., A.D.G.B., Uxbridge, 1/10. J. Marsden, to R.A.F. Depot, Uxb 1/10. V. B. Bennett, to No. 602 Sqdn., Renfrew, 1/10. J. S. Nich E. and W. School, Flowerdown, 17/9. A. H. J. Howlett, to Sqdn., Donibristle, 6/9.

Flying Officers A. H. Berry, D.S.M., to R.A.F. Base, Gosport, A. H. M. Weir, to R.A.F. Training Base, Leuchars, 6/9. S. Gray, to No. 20 Sqdn., India, 24/8. R. A. Barnett, to No. 28 India, 29/8. A. E. Groom, D.S.M., to A.A.E.E., Martlesham 8/10. H. E. E. Weblin, to M.A.E.E., Felixstowe, 18/9. B. C. to No. 603 Sqdn., Turnhouse, 24/9.

Pilot Officers W. H. Hutton and A. W. Hunt, to School of Co-operation, Lee-on-Solent, 10/9. The undermentioned are pos R.A.F. Depot, Uxbridge, on appointment to S.S. Comns. (on prob with effect from 14/9 :—A. G. Adnams, A. F. P. Anning, A. R. strong, A. C. Baber, J. F. Balling, J. E. Beynon, B. A. Blythe, Brain, C. M. D. Chambers, C. M. Champion De Crespigny, Clarke, H. R. Collons, R. G. Cruickshank, E. W. Downing, Fenton, K. R. Garle, L. I. Gibson, I. C. Guest, F. N. Hemphill, Hughes-Hallett, E. Ions, A. E. Louks, D. S. McDougall, McNeill, C. C. C. Manson, G. O. St. J. Morris, M. P. O'Reilly, Pell, A. F. Powell, C. Ray, F. Read, R. A. R. Robinson, J. D. L. P. Rowley, F. W. H. Russell, D. F. Satchwell, J. S. Shakes G. C. Shirtcliffe, V. C. F. Streatfeild, L. P. Thomas.

Stores Branch.—Flying Officer A. J. Redman, D.F.C., to C. a Party, Cattewater, 20/7.

Chaplains Branch.—The Rev. J. F. Cox, M.C., B.A., to R.A.F. Middle East, 8/9. The Rev. W. P. Hughes, to No. 4 F.T.S., East, 7/9.

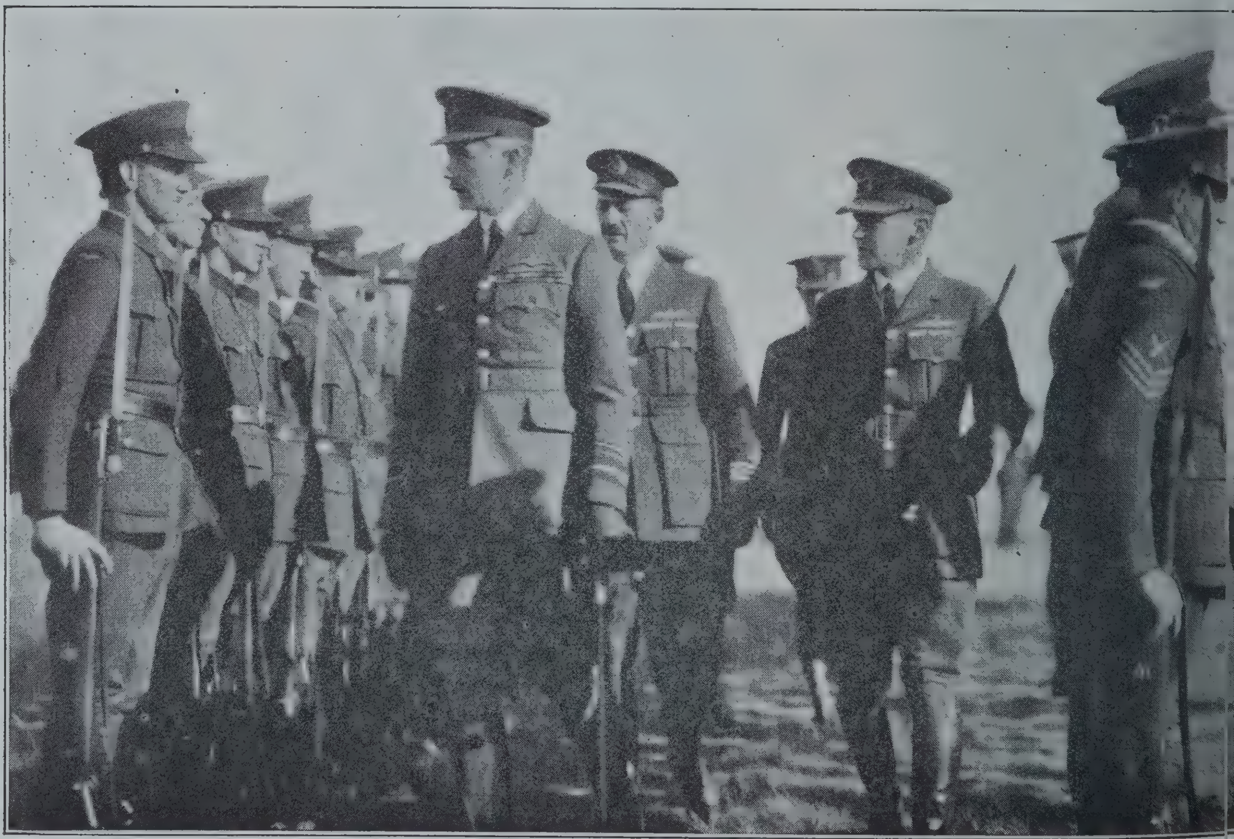
The World's Speed Record.

The first trial flight of the Supermarine S.5 (Napier engine), in which Flt. Lt. D. D'A. A. Greig will mak attempt on the World's Speed Record, was made at Ca on Oct. 1.

After waiting for 12 days for suitable weather Flt. Greig made a flight of half an hour during the afternoo

During the past week two more officers have joine High Speed Flight at Calshot and have begun prelim training in a Fairey Flycatcher. They are Flt. Lt. G Stainforth, from the C.F.S., Wittering, and Flg. Off. Staniland, from No. 41 (Fighter) Sqdn., Northolt.

[Those who are interested in the capturing of W Records will be either amused, or furious, according t working of their sense of humour, at the way in which, wasting the whole of one of the finest Summers on r in doing nothing, we now set out to break records in we which has already broken. We might have had the r



DOWN UNDER.—Air Marshal Sir John Salmond, K.C.B., C.M.G., C.V.O., D.S.O., A.D.C., R.A.F., inspecting a Unit of the Royal Australian Air Force at Point Cook. Behind Sir John Salmond is Wing Cdr. Cole, O.C. Point Cook, and on his left is Sq. Ldr. Bostock, O.C. Flying Squadron at Point Cook. Sir John Salmond left Australia on Sept. 20 and arrived at Wellington, New Zealand, on Sept. 25.

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P.1.

the day after the Schneider Trophy Contest last year. We might have captured it during the fine spell in October last year. We killed poor Kinkead by sending him after the record in unsuitable weather in the Spring of this year. And now we go for the thing in the wrong weather again. Verily we English are a wonderful people.—C. G. G.]

Army Officers and Flying.

The Times of Sept. 28 states :—

> It has been decided that Regular Army officers will not be selected for courses in flying with the R.A.F. unless they volunteer to fly and state their willingness in writing to do so. The courses will be made up only from those who volunteer.

[If the political side of the War Office is going to be intimidated by a few silly questions in the House of Commons into producing regulations of this sort, which are only likely to bring the Army into contempt, one suggests that the Permanent Officials, who are not politicians, should reduce the whole thing to an absurdity by requiring officers to state in writing their willingness (A) to ride a horse (B) to fire a gun (C) to go into battle.—C. G. G.]

The Health of the R.A.F.

[*Report on the Health of the Royal Air Force for the Year* 1927. H.M. Stationery Office or The Aeroplane Book Dept. 3s. net.]

In submitting his report on the health of the R.A.F. in 1927, Air Vice-Marshal D. Munro, Director of Medical Services, R.A.F., states that the health of the force at home and abroad has been good, and the figures for sickness, death and invaliding incidence during 1927 compare very favourably with those of previous years. Eighty-eight per cent. of the officers of the General Duties Branch who were called upon to fly had been found to be fit for full flying duties, and the standard of fitness of both officers and airman pilots had been shown by the routine physical efficiency tests to maintain its high level of previous years and to be well above the accepted standards.

This Report, which has appeared six months earlier than usual, is on the same lines as previous Reports, the main difference being that the units of the Fleet Air Arm are shown this year as a separate area.

The average strength of the Fleet Air Arm is shown as 711 and the deaths incidence per 1,000 of strength is 11.3, considerably higher than in any other area, India being the next highest with 8.1.

The average strength of the total force during 1927 was 30,123 and the total number of cases of sickness was 24,422. The table of sickness by disease groups shows a decrease from other years in most diseases but an increase in malaria, influenza and pneumonia.

The increase in malaria occurred in Egypt and Palestine and 53 cases were contracted in one Armoured Car Company on reconnaissance around Azrak. In 'Iraq there were considerably fewer cases of malaria than in previous years.

There were 786 cases of influenza at home stations during 1927 compared with 472 in 1926. Flower Down and Henlow accounted for 25 per cent. of them, and Netheravon had 105.2 cases per 1,000 of strength.

The average strength of the R.A.F. in China, excluding the Fleet Air Arm, was 147 and 206 cases of sickness occurred, resulting in two deaths and three invalidings to the United Kingdom.

The total number of cases of injury during 1927 was 2,129. Of these 702 were due to athletics on duty (organised games) and 378 to motor transport off duty. Five members of the R.A.F. were bitten by cats—whether on or off duty is not stated.

Of the 80 deaths from injury 52 were caused while flying on duty and 10 by motor transport off duty.

During 1927 there were fewer casualties in flying than in any one year since 1923 and considering the number of aircraft hours flown per accident resulting in death or injury, the casualty risk was the lowest recorded.

Motor-cycle accidents off duty amounted to 308 and resulted in 8 deaths and 6 invalids.

There were two cases of injuries sustained from rifle fire while flying, both of which recovered. Twelve cases of injury during parachute descents were reported, one of which was fatal.

The Central Medical Board examined 588 candidates for flying duties and accepted 311. The chief cause of rejection was defective eye-sight.

The Medical Officers' School of Instruction and the Hospital Orderlies' Training Depot, have been incorporated into a new medical Unit known as the Medical Training Depot, and stationed at Halton.

The new R.A.F. General Hospital at Halton, which was opened on Oct. 31, 1927, is described in this Report and scale plans of the two floors are given.

The decrease in the garrison in 'Iraq accounts for the drop from 130 in 1926 to 56 in 1927 in the number of patients transferred to hospital by air. Of these 32 were conveyed in aircraft specially detailed for the purpose, and 24 in airc
carrying out duty trips for purposes other than medical.

In Palestine, during 1927, 69 patients were transferred fr
the R.A.F. Station at Amman to Ramleh, a distance of
miles, over country impracticable to road transport.

Wing Commander J. H. S. Tyssen, M.C.

Wing Commander J. H. S. Tyssen, M.C., wh
appointment to H.M.S. *Argus* as Senior Air Force Officer
dated October 10, was born at Westbury, Barton Reg
Somersetshire, in 1889 and educated at Wellington.
joined the Somerset Light Infantry, Volunteer Battalion,
a 2nd Lieutenant in 1907 and transferred to the Somer
Yeomanry in 1912 and was promoted Captain in August, 1
He served in France with his Regiment from March
June, 1915. He learned to fly on a Maurice Farman bipl
at Shoreham and his Royal Aero Club certificate, No. 1
is dated Aug. 20, 1915. He was seconded to the Royal Fly
Corps in September, 1915, and appointed Flight Comman
in February, 1916. In April, 1916, he went to France w
the R.F.C. and in November of that year he was awar
the Military Cross. The *London Gazette* of Nov. 14, 1
states :—

> For conspicuous skill and gallantry. He has done fine work in ph
> graphy often fighting against odds in order to get his work done.
> one occasion when five enemy machines interfered with one pat
> he, with another officer, dived at one and brought it down.

He was appointed Squadron Commander with
temporary rank of Major in January, 1917, and Major in
Yeomanry in March, 1918. In August, 1919, he relinquis
his Army commission on appointment to a permanent c
mission in the R.A.F. In April, 1920, he was appointed
command No. 20 Squadron, Ambala, India. In Janua
1923, he was promoted to be Wing Commander and in Ap
1923, he was posted to No. 5 Wing H.Q. at Biggin Hill.
1924 he went to No. 21 Group H.Q. and in November, 1
he was appointed to command the R.A.F. Station
Tangmere.

R.A.F. SPORTS AND PASTIMES.

Boxing.

The Sir Charles Wakefield Boxing Competition, for tea
of novices representing stations, will take place at Hen
on Wednesday and Thursday, Nov. 7 and 8, 1928. The c
petition will be conducted in accordance with the rules p
lished in the handbook of the R.A.F. Boxing Association
1927-1928.

Officers' Competition :—" A " This competition will
clude the following weights : (Teams of 5) Heavy, Midd
Welter, Light and Feather.

Airmen's Competition :—" B " and " C " Teams of 8.

Incomplete teams may enter and entries may be forward
to reach the Hon. Secretary, R.A.F. Boxing Assn., togeth
with entrance fee of £2 in respect of each team entered
Oct. 20, 1928, at the following address :—Sq. Ldr. A.
Pettingell, Home Aircraft Depot, R.A.F., Henlow Ca
Beds.

The R.A.F. Swimming Association.

The duties of Secretary to the R.A.F. Swimming Asso
tion have been taken over from Flt. Lt. V. G. A. Ben
with effect from Sept. 27, 1928, by Flt. Lt. G. Com
Armament and Gunnery School, Eastchurch, Kent.

No. 28 Squadron, Old Boys' Association.

The Annual Re-Union Supper of No. 28 Squadron,
Boys' Association, will be held at the White Horse, Holb
near Holborn Tube Station, at 6 o'clock for 6.30 p.m.

The Committee have arranged the supper for the sec
Saturday in October this year so that members who live
the Provinces may take advantage of the excursions to
Motor Show.

Application for tickets, 3s. 6d. each, should be made
soon as possible to C. T. Hodges, 102, Camden Street, L
don, N.W.1. Men friends may be invited.

A Seaplane Station Re-union.

The Annual Re-Union Dinner of the Seaplane Base, Sc
Islands, will be held at the Maison Lyons, Shaftesb
Avenue, W.1 (2nd floor) on Friday, Oct. 19, at 19.00 hou

The Re-Union is for all ranks. Tickets, 6s. each, may
had from F. W. Hunt, 157, Coldersham Road, West Eali
W.13.

A LONG DROP.

The Chevalier Willy Coppens, the famous Belgian
pilot and " Ace," who was a well known and popular fig
in British flying society during his residence in London
the Belgian Air Attaché, left an aeroplane by parachute a
height of approximately 20,000 ft. on Sept. 25, somewhere
the neighbourhood of Paris.

His many friends in this country will be glad to hear t
this experiment—for it was no more—was entirely success
and that neither the Chevalier himself nor his artificial
suffered any damage. Congratulations to him on a v
gallant and spectacular effort.

ROLLS-ROYCE
AERO ENGINES

"Those who saw the beautiful 'Wizard' Monoplane fitted with this (Rolls-Royce) Engine leap skyward when the pilot opened his throttle gained some idea of what the 'F' Engine enables designers to accomplish."

Daily Mail
2nd July
1928

ROLLS-ROYCE LIMITED
14-15 CONDUIT STREET
LONDON, W.1

THE VOYAGE OF SIR PHILIP SASSOON.

On Sept. 29 at 07.00 hours Sir Philip Sassoon, Under-Secretary of State for Air, left the R.A.F. Seaplane Station at Cattewater in a Blackburn Iris II flying-boat (three Rolls-Royce Condor engines) on his voyage to India. With him is Air Commodore A. M. Longmore, C.B., D.S.O., Director of Equipment at the Air Ministry. The pilots are Sq. Ldr. C. L. Scott, D.S.C., and Flt. Lt. L. Martin. The rest of the crew consist of four airmen and Sir Philip's valet.

The object of the voyage is two-fold. Firstly, to test the latest type of R.A.F. flying-boat on a long journey, which will amount to somewhere about 15,000 miles. And secondly to give our Under-Secretary of State an opportunity of visiting R.A.F. Units over-seas.

The Iris will proceed first to Cairo. There Sir Philip will leave it and will go by land machine to Khartum and back, and thence by the desert route to Baghdad. Meantime the Iris will follow the route taken by the Southamptons of the Far East Flight from the Mediterranean to the Euphrates. From Baghdad Sir Philip will travel in the Iris to Karachi and from Karachi he will fly by land machine to the various units in India. Having visited them he will return to the Iris at Karachi and fly back to England by way of Malta.

The exact route to be followed is by way of Bordeaux and Marseille to Naples, where he arrived on Sept. 30. Thence to Athens, where he intends to stay for two days, and thence to Cairo, where he is due to-day, Oct. 3.

From Cairo his approximate time-table is Khartum, Oct. 7-9, then Aswan, Cairo, Amman and Baghdad, Oct. 11-12. After that come Basrah to Karachi, Oct. 14-15.

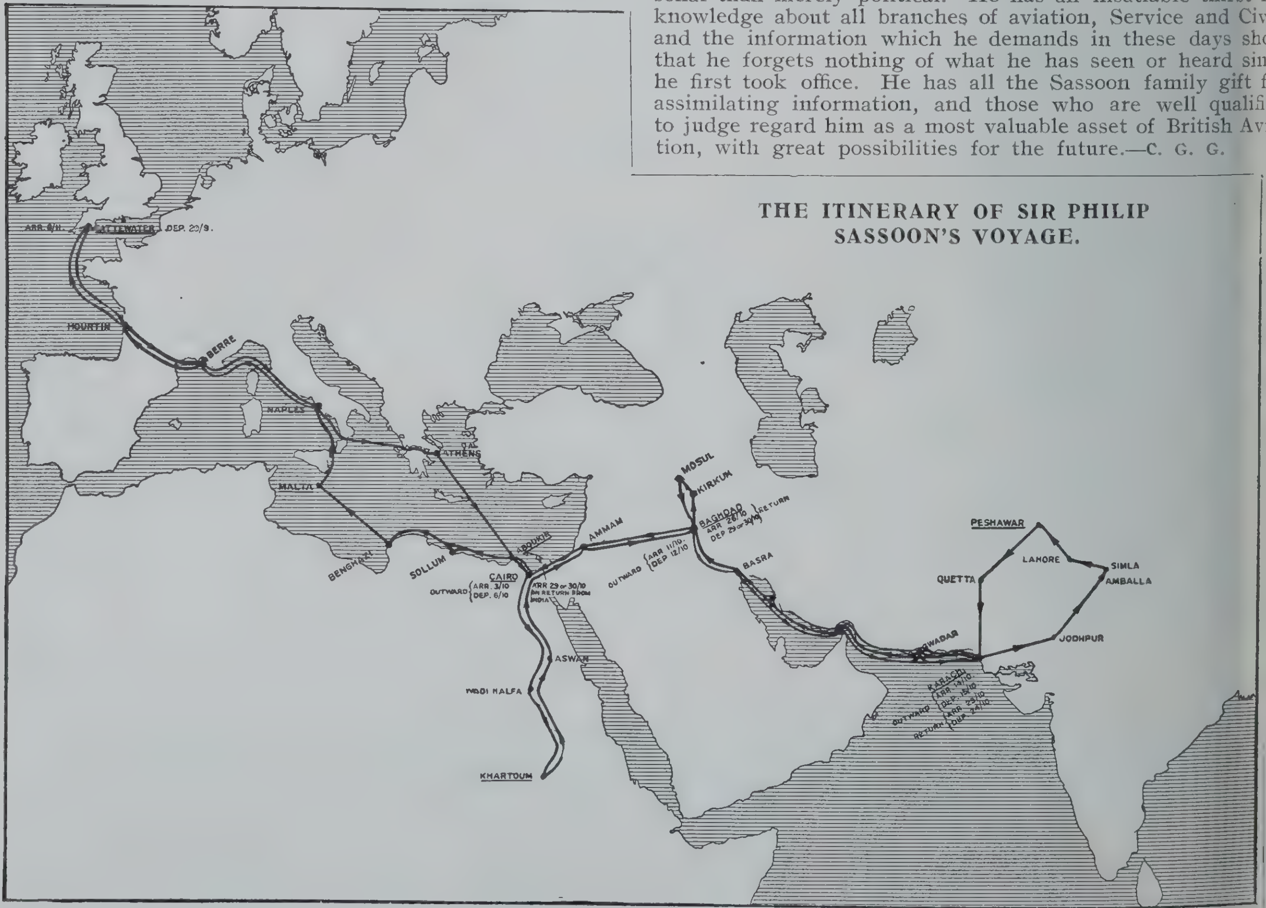
From Karachi he will fly to Jodhpur, Amballa, Simla, Lahore and Peshawar, Oct. 20-22, on R.A.F. land machines. This will mark the farthest point on his journey.

After visiting Quetta he is due back at Karachi on Oct. 23-24. Thence he will fly in the Iris to Baghdad, Oct. 26-30, and while the Iris is returning to Abukir he will go by land machine to Mosul, and back by way of Amman to Cairo and Abukir, Oct. 29-31. Thence his route will be along the North African coast, calling at Sollum and Benghazi, to Malta, Nov. 1-3, and so back by way of Naples and Marseille to Cattewater, where, all being well, he should arrive about Nov. 6.

OUTWARD BOUND.—The Under-Secretary of State fo Air, Sir Philip Sassoon, with Air Commodore A. M Longmore, C.B., D.S.O., Director of Equipment, an Sq. Ldr. C. L. Scott, D.S.C., Officer Commanding Flying-boat Development Flight, R.A.F., just before th start of their 17,000 miles' cruise in the Blackburn Iri II flying-boat (three Rolls-Royce Condor engines).

Sir Philip's route, including land flying, will cover about 17,000 miles, and in the course of the journey he will be enabled to visit every R.A.F. Unit over-seas, with the exception of the Far East Flight at Singapore, and the squadron at Aden. By the end of the tour he will probably be about the best-informed person in this country on the subject of R.A.F. conditions, with the possible exception of a few senior office who have actually commanded units in these various are

When Sir Philip Sassoon first became Under-Secretary State for Air there were those who were under the impre sion that he was just a rising young politician who saw the Air Ministry an opportunity for political advancemer Those who have had the opportunity of meeting him of la know that his interest in air affairs is very much more pe sonal than merely political. He has an insatiable thirst f knowledge about all branches of aviation, Service and Civ and the information which he demands in these days sho that he forgets nothing of what he has seen or heard sin he first took office. He has all the Sassoon family gift f assimilating information, and those who are well quali to judge regard him as a most valuable asset of British Av tion, with great possibilities for the future.—C. G. G.



THE ITINERARY OF SIR PHILIP SASSOON'S VOYAGE.

“Bristol”

Aircraft of metal construction.

“Bristol” design, “Bristol” workmanship and “Bristol” performance.

Telegrams: “Aviation, Bristol.”
Telephone: 3906 Bristol.

THE BRISTOL AEROPLANE CO., LTD.,
FILTON — BRISTOL.

AEROBATICS.

["Aerobatics," by Major Oliver Stewart, M.C., A.F.C. 78 pages, 9 photographs, 10 diagrams, appendix, index. 7½ in. by 5 in. Sir Isaac Pitman and Sons Ltd. From The Aeroplane Book Dept., Cannon House, Pilgrim Street, E.C.4. 5s. net.]

The reviewer is not quite certain whether this book is intended to instruct the uninitiated how to become an aerial showman, or whether it is merely a booklet written *en passant* with the intention of encouraging the inexperienced pilot to stunt. Whichever it be, it does not justify the ambitious claim of the publisher that "This book will be found interesting and helpful to both pilots of H.M. Royal Air Force and to members of private flying clubs . . . . .," for all the evolutions which are diagrammatically described (these being the only evolutions in the book which have any instructive value) were being performed by R.A.F. pilots over a decade ago, and have since been practised and improved upon with such success that annually the Royal Air Force Display attracts more spectators than any other public attraction of the year. On the other hand there is nothing in the book which will improve the aerobatical education of the R.A.F. flying instructor (who imparts his knowledge and technique to his juniors) as the same evolutions are more accurately and lucidly described in the various R.A.F. Flying Training Manuals.

The degree of educative value of this book to the members of private flying clubs will depend chiefly upon the flying stage which they are in when they peruse the volume, and upon the mentality and experience of their instructor, for if he be an ex-Air Force instructor or a keen stunt pilot, it is doubtful whether the book will be of much assistance to them. Personal instruction is always more instructive and successful than the postal correspondence type of course, irrespective of the subject, let alone on Aerobatics, which the author aptly describes as "the only searching test of control yet evolved."

Major Stewart deals primarily with those evolutions which are commonly termed Aerobatics, and are normally performed at some time or other by all pilots who are imbued with the offensive spirit. He describes the various evolutions with a variable degree of simplicity and lucidity, usually depending upon whether he supports the manœuvre with a diagram, as he does when describing the climbing loop, the spin, the right-hand flat turn, the left side slip, the left-hand vertical turn, the falling leaf and the flick roll; but as these are all "stunts with grey whiskers on," they do not intrigue the reader.

He would prefer a better description supported by a diagram of such evolutions as the slow roll, which has far more claim to be classed as "the most spectacular and brilliant of all aerobatics, when performed very close to the ground" than the flick roll, a stunt which the author startingly declares "demands of the pilot technique which is difficult and elaborate"!!; a double bunt; an inverted falling leaf; and similar evolutions which one sees at the Air Force Display, but which very few pilots can perform accurately.

More interesting and edifying still would have been diagrams giving the control movements of each evolution described in the chapters on "New Evolutions" and "Future Evolutions," especially the one on the "stunts" which Major Stewart describes as "a kind of mixed 'Black Bottom' and 'Heebie Jeebies' raised to the power of 7. The aeroplane while switchbacking along close to the ground, alternately flat turns to the right and left. There is also the trick in which *one wheel and a wing-tip are trailed along actually on the ground during flat turns.*"

One feels that it is a great pity that such a distinguished pilot as the author has not already mastered some of these visionary evolutions which appear so fascinating to the reader, so that he might have benefited by his experience.

Nine chapters deal with the question of various evolutions, the remaining five are of heterogeneous subjects with a direct bearing on Aerobatics. The chapter on "Aerial Showmanship" is possibly the best in the book, the author spreading himself on how to maintain a *permanent gape* among the spectators, for example he says, "a low roll, indeed, should be started *five* yards from the railings," while "after a low loop—*parallel* to the railings, for example, the machine may be held down and slightly turned so that as it finishes the loop it *rushes* past at extremely high speed a *few feet* from the enclosure. If the machine is *still* held down, a vertical bank, as the end of the enclosure is reached, will keep things going, and the machine may instantly be canted over for 'crazy' flight along in the opposite direction"! [The italics are the critic's.—Ed.]

The chapter on the use of instruments is good, the author's remarks that "if the pilot uses his instruments intelligently, that is, if he uses them to check and support his own judgment, he will reduce to vanishing point the risk of making a big error in the estimation of air speed," is worthy of support. While his assertion that "modern aircraft inst
ments are extremely reliable . . . . . and that it is not
much to say that the important instruments are no m
likely to fail than the pilot's judgment," is in entire acc
with the view of the reviewer, for if all pilots, especia
the conceited ones, will only rely more on their instrume
and not so much on their own judgment the number of crasl
due to stalling, etc., will undoubtedly decrease in numbe

The final chapter on "The Physiology of Aerobatics"
most interesting, and the paragraph on "Height Effect
briefly and lucidly expounds the fundamental difference
tween height as it affects a person in an aeroplane and as
affects a person standing on the edge of a roof of a hi
building.

This little book is certainly interesting and should be re
by all would-be pilots, and those undergoing *ab initio* tra
ing, for it will give them an insight into the thrills whi
they must expect if they have the desire to become famo
"aerial showmen," and to stimulate their passion to emula
the evolutions performed by the late Captain Armstrong, wl
we are informed by the author, had such control over
Camel that he used to "Fly across the aerodrome, t
wheels of his machine skimming the grass. Suddenly,
without a jerk, the machine would *rear* up, *turn complet*
upside down without raising itself above the level of t
shed roofs, and flatten out with the wheels again skimmi
the grass." [Captain Armstrong was killed on Armistice D
when performing precisely this manœuvre by way of ce
brating the cessation of War.—Ed.]

More experienced pilots are recommended to read t
book as a matter of interest, for Chapters VII and VIII su
gest new evolutions which inquisitive and impecunious pil
may like to try.—S. M. K.

WHAT EVERY PILOT OUGHT TO KNO

[*The Law in Relation to Aircraft.* By Lawrence Arth
Wingfield, M.C., D.F.C., and Reginald Brabant Spark
M.C. 304 plus VI pages. Longmans Green and C
Price 12s. 6d. From The Aeroplane Book Departme
Cannon House, Pilgrim Street, E.C.4]

The English being essentially a law-abiding people it
well that readers of The Aeroplane should know somethi
of the laws which affect their own particular activiti
Therefore one commends to all who are or who definitely
tend to be pilots or owners of aircraft that they should p
sess a copy of "The Law in Relation to Aircraft."

Hitherto books on aircraft law have consisted almost e
tirely of long and dull dissertations as to what may happ
if the common law of the land be applied to special cas
in which aircraft are concerned. Or else they have argu
about the effect on the users of aircraft of international la
And one excellent lawyer has actually gone to the leng
(considerable length) of writing on the laws of war as th
affect aircraft,—cheerfully ignoring the one great lesson of t
War, 1914-18, that nobody is going to stick to any la
in war and is merely going to be guided by conscien
whether personal or national.

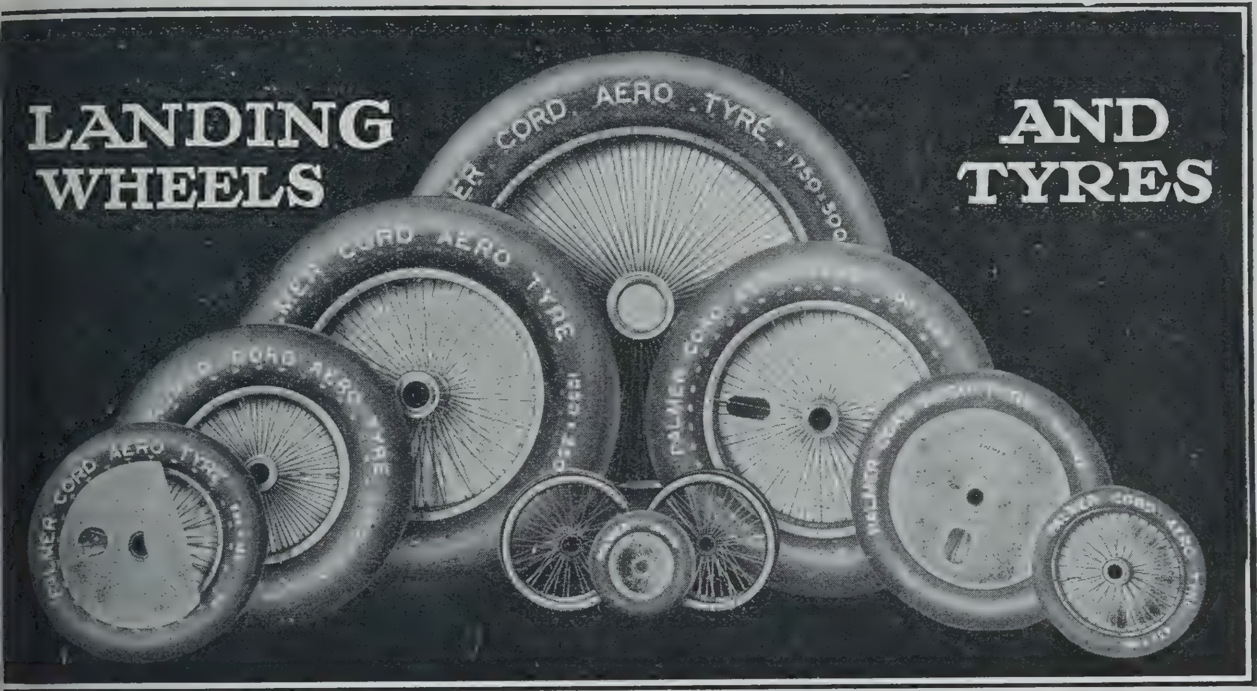
In this book Messrs. Wingfield and Sparkes, each a g
lant officer who after distinguishing himself in war h
taken to the law, have attacked their subject in a thoroug
practical way. They have merely taken the existing la
which have been made specially for the control of aviati
and have set them forth in a simple manner with, whe
necessary, simple explanations of what these laws mean

The first chapter deals with the International Regulati
of Air Navigation which, applying purely to times of pea
does deal with laws that can be enforced. The second cha
ter deals with the General Principles of English Law, sho
ing how the special legislation for aviators is in itself le
and how the Common Law on such things as the liabil
of carriers and the law as to insurance and so forth, d
apply to practical aviation.

Chapter 3 tells one what an Aerodrome is within the me
ing of the Act, and then proceeds to set forth the la
which govern the conduct of aviators on aerodromes. Cha
ter 4 is concerned with the Regulation of Aircraft, tells
what a flying machine is within the meaning of the A
sets forth the conditions which are essential before an a
craft may be flown, and tells the aviator just how to be
good boy before setting off into the atmosphere.

Chapter 5 deals with the Personnel of Aircraft, descri
the tests for "A" and "B" Licences, and indicates t
knowledge required of an air navigator. And incidenta
shows how the Workmen's Compensation Act applies
people employed in or on aircraft. Here one has a slig
quarrel with the authors, because they say of the "A
Licence that it "does not permit the pilot to fly for f
or reward or for any industrial purpose." Their meani
perhaps is fairly clear, but from their wording one mig
imagine that an enterprising farmer who does not posse
a "B" Licence is thereby debarred from spraying his ov
crops from the air or even from flying from his farm to t

PALMER



STANDARD SIZES.

Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore	
		m/m	m/m	m/m
75×55	168	111.12	25.4	Central
00×60	16	111.12	25.4	Central
50×60	30	89.	31.75	Central
"	172	130.	38.09	Central
75×60	21	160.	28.	Central
"	180	150.	38.09	104/46
"	186	120.	34.92	Central
"	90	150.	38.09	Central
50×65	78	178.	44.45	132/46
"	79	178.	44.45	Central
"	100	178.	38.09	132/46
"	101	178.	31.75	132/46
00×75	21	160.	28.	Central
"	180	150.	38.09	104/46
"	186	120.	34.92	Central
"	190	150.	38.09	Central
00×75	78	178.	44.45	132/46
"	79	178.	44.45	Central
"	100	178.	38.09	132/46
"	101	178.	31.75	132/46
0×100	77	178.	44.45	132/46
"	92	185.	55.	135/50
"	95	185.	55.	Central
"	99	178.	38.89	132/46
700×100	112	150.	38.09	Central
"	176	178.	44.45	Central
"	179	178.	55.	132/46
650×125	119	178.	55.	132/46
"	147	178.	55.	Central
"	188	120.	34.92	Central
750×125	77	178.	44.45	132/46
"	92	185.	55.	135/50
"	95	185.	55.	Central
"	99	178.	38.89	132/46
"	112	150.	38.09	Central
"	176	178.	44.45	Central
"	179	178.	55.	132/46
800×150	161*	185.	55.	135/50
"	162*	185.	55.	Central
"	163*	185.	66.67	135/50
"	169†	185.	55.	135/50
"	177	185.	55.	135/50
"	183	185.	55.	Central
"	211*	185.	60.32	135/50
1000×150	167	185.	55.	125/60
"	174	250.	80.	Central
"	182	185.	55.	Central
"	187	220.	66.67	Central
"	201	185.	60.32	125/60
1000×150	210	185.	60.32	Central
1000×180	148	220.	80.	Central
"	149	185.	55.	Central
"	155	220.	66.67	Central
"	166	185.	55.	125/60
900×200	107	185.	55.	Central
"	108	185.	55.	125/60
"	128	220.	66.67	Central
"	137	250.	80.	Central
"	157	185.	80.	Central
"	202	185.	60.32	Central
1100×220	134	220.	66.67	Central
"	136	250.	80.	Central
975×225	192	185.	60.32	Central
"	194	185.	55.	125/60
1250×250	133	250.	80.	Central
"	154	304.8	101.6	Central
1500×300	115	304.8	101.6	Central
"	126	304.8	152.4	Central
1750×300	139	400.	152.4	Central
"	191	350.	150.3	Central
1750×350	193	400.	125.	Central

eels Nos. 161, 162, 163 and 211 are of stronger type than the other wheels for 800 × 150 tyres. †*Wheel No. 169 is fitted with Ball Bearings.*
Grease gun equipment is now a standard fitting on all wheels.

THE PALMER TYRE LIMITED,

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Telephone:—
City 1477 (Two Lines).

(366)

nearest market town on business, or that an equally enterprising commercial traveller is thereby debarred from visiting his customers by air.

Chapter 6 deals with the regulation of actual flying, such as documents which must be carried in aircraft, the carrying of wireless, general safety conditions (such as smoking in British aircraft), rules as to lights and so forth. Chapter 7, which is happily only just over a page in length, deals with the law in relation to accidents—the notification and investigation thereof.

This portion of the book only takes 64 pages and the information in it is well worth the price of the book. Thereafter follow seven Appendices, which are reprints, with brief introductions, or explanations, of the chief laws which govern aviation.

(A) Is the text of the Convention for the Regulation of Aerial Navigation in 1919. (B) Is the Air Navigation Act of 1920. (C) Is the Consolidated Order of 1923, which is the basis of all our air law. A knowledge of it is absolutely necessary to all users of aircraft and the producers of the book have done well to include it as an appendix, for it is not always easily obtainable. (D) Contains the Air Navigation Directions of 1926. (E) Deals with the Airworthiness Handbook.

AN ANGLO=GERMAN RECORD.

On Sept. 14 Dipl. Ing. Schinzinger, flying a Junkers W.34 monoplane fitted with a Bristol Jupiter Series VII supercharged engine made two flights in which new records for altitude with 1,000 kg. (2,204 lbs.) and 500 kg. (1,102 lbs.) were established. The results of these two flights have been officially recognised by the *Deutsche Versuchs-Anstalt für Luftfahrt*, but are still awaiting acceptance by the F.A.I. The official German figures so far exceed the present World's records in the two categories that there is little doubt that they will be homologated as World's records.

The first flight—carrying 1,000 kg.—started at 08.37 hours and a height—corrected to standard conditions—of 7,926 metres (approximately 26,000 ft.) was reached in 78½ minutes, after which 25 minutes' glide brought the machine to earth at 10.20 hours.

The second flight—with 500 kg.—began at 15.52 hours, a corrected height of 9,215 m. (approximately 30,230 ft.) was reached in 68 mins. The glide to earth took 24 mins. and the flight ended at 17.24 hours.

The supercharger of the Jupiter engine was in action during the whole of both climbs, but full throttle was not used below 3,300 m. (11,000 ft. approx.). The engine speed at ground level in both flights was 1,520, increasing to 1,600 r.p.m. at 1,000 m. and 1,760 r.p.m. at 3,000 m. (9,840 ft.). On the second flight (500 kg. load) a maximum of from 1,800 to 1,820 was reached at 9,000 metres or over.

A mixture of 80% Shell petrol and 20% benzol was used below 6,500 metres (21,500 ft.). Above this Shell petrol alone was used. The temperatures encountered on this flight fell to — 40° C. (— 40° F.) at 8,000 m. (26,200 ft.) and — 45° C. (— 49° F.) at 9,200 m. (30,000 ft.).

The Junkers W.34 is a machine identical in construct
with the type W.33, of which the *Bremen*, used on the fi
East-West crossing of the North Atlantic, is an examp
except for the use of a Jupiter engine in place of a Junk
L.5.

The particular machine used for these climbs weig
empty 1,195 kg. (2,634 lbs.) and carried in addition to
kilogramme more than the normal useful loads (that is
and 1,001 kg.) 71 kg. (156.5 lbs.) of pilot, 15 kg. (33.6 l
of oxygen apparatus and 209 kg. (460.6 lbs.) of fuel.

THE GRAF ZEPPELIN.

The new German rigid airship LZ127 made her seco
flight on Sept. 28, leaving at 07.00 hrs., with 75 passeng
(total personnel?) on board. The original intention
to fly to Vienna and back, but after skirting the Bavar
Alps and crossing Austrian territory at Salzburg the capt
turned back over Bavaria and returned to Friedrichshafen
16.30 hrs.

Major G. H. Scott, officer in charge of flying and train
at the Royal Airship Works, Cardington, and Sq. Ldr. R.
Booth, A.F.C., attached to the same establishment, w
among the passengers on this trip.

During the whole of the journey the airship's wire
installation broadcast news of her whereabouts and of
incidents of the flight. The messages were received cle
over a wide area of Germany.

The statement is now made that the reason why the
gas fuel which is to be used on this ship has not been u
on these preliminary tests is that the *Deutsche Versu
Anstalt für Luftfahrt* (D.V.L.), the German " airworthines
authority, has not yet satisfied itself as to the safety
suitability of this fuel for general service. A limited lice
to use the new fuel for test flights has now been grante

L.Z127, of 3,700,000 cubic feet capacity, is the latest
largest of Zeppelin airships yet built. She is thus ne
three-quarters the size of the two British airships now be
constructed, is designed, as are the British ships, for l
distance commercial service, and her success or fail
together with the results of the British efforts in a sim
direction is likely to determine the prospects of the r
type of airship for some considerable time.

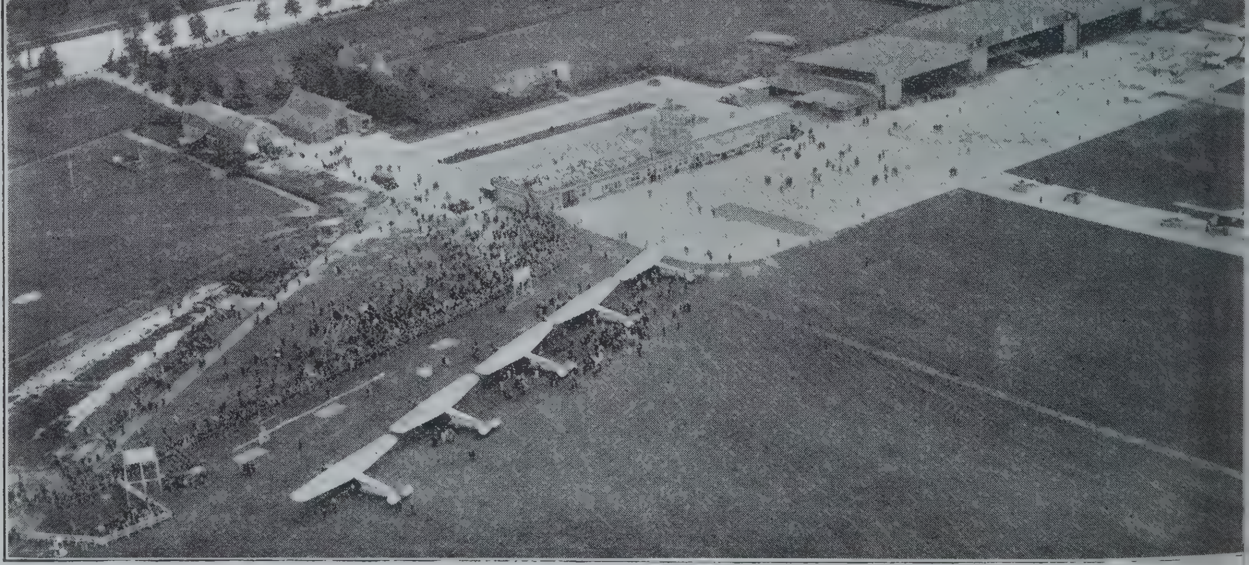
THE FLIGHT TO THE DUTCH EAST INDI

The first of the five Fokker F.VII-3m machines which
flying from Amsterdam to Batavia reached its destinatio
10.48 hours on the morning of Sept. 25 and delivered 279
(604 lbs.) of mails. The lapsed time for the journey
twelve days,—exactly according to schedule.

The second machine, which left Amsterdam on Sept.
reached Karachi on Sept. 25, Calcutta on Sept. 27, Rang
on Sept. 28. This machine carries 180 kg. (396 lbs.) of m
for Batavia.

A report from Holland announces that the second mach
reached Batavia safely on Oct. 1.

The third machine left Amsterdam on Sept. 27 and in
absence of news to the contrary may be assumed to be mak
satisfactory progress.



TOWARDS THE EAST.—An aerial view, taken by K.L.M., of the five Lynx=engined Fokker monoplanes which are being flown out to the Dutch East Indies, lined up at Amsterdam before the departure of the first machine.

The

AVRO

MONOPLANE

(Fokker Type)

MESSRS. A. V. Roe & Co. Limited beg to announce that they have entered into arrangement with N. V. Nederlandsche Vliegtuigenfabriek, the makers of Fokker Aircraft, for the manufacture and sale in Great Britain, the Irish Free State, India, Australia, New Zealand, South Africa and other British possessions of triple-engined Avro machines similar in design and construction to the triple-engined Fokker F7's which are now flying on service between Holland and the Dutch East Indies, Munich and Milan and on other routes and which have made such wonderful flights across the Pacific and Atlantic. Prices and dates for delivery for Avro monoplanes (Fokker type) fitted with three Lynx engines can now be given.

For full particulars write to:

A. V. ROE & CO. LTD., MANCHESTER.

London Office & Export Dept.: 166, Piccadilly, W.1.
Experimental Works: Hamble, Southampton.

A.V.13

A NEW CIVIL AERODROME.

A development of considerable importance to Civil Aviation is at present rapidly approaching completion. A firm bearing the title of Airwork Ltd. has been formed by Mr. H. N. St. V. Norman and Mr. F. A. I. Muntz, to carry on the business of aerodrome proprietors and all that the title may imply.

Mr. Norman is the son of Sir Henry Norman, formerly M.P., who during the War concerned himself considerably with air and wireless affairs, and Mr. Muntz is a grandson of the original Muntz of the famous Muntz Metal. Consequently their descent peculiarly fits them to deal with aircraft in all its activities.

Airwork Ltd. have acquired an area of ground near Heston in the angle between the new Great West Road and the Bath Road. Roughly the ground is midway between Hounslow station and Southall station, about a mile from each. And it is a bare half-mile from the Great West Road. Consequently it will be by far the easiest aerodrome to reach from the West End of London.

Their scheme is first of all to erect a club-house and sheds, where private and commercial owners may house machines. There will also be a workshop where repairs will be undertaken for all and sundry. Ultimately the club-house idea will be considerably developed, and one hopes within the next year or little more to see their air-park become the resort of the best people in Town,—who are now becoming interested in flying in large numbers.

One believes that Airwork Ltd. has come into existence at just the right time. The younger generation of sportsmen and sportswomen who were mere children when the War 1914-18 ended about ten years ago are now coming into their money, or at any rate acquiring it from indulgent parents. They are taking to flying just as the pre-war generation took to sporting motoring. There is no sporting motoring in these days except for track racing, so quite naturally the well-to-do young people between twenty and thirty years of age are taking to flying. Consequently Airwork Ltd. should find plenty of air work to do.—C. G. G.

THE BRIGHTON AERODROME SCHEME.

A statement has been issued to the effect that the Founders Trust Ltd. are now completing the underwriting of the National Road Racing Track and Aerodrome (Brighton) Limited, and that the issue will be brought out early in October.

Contracts have been provisionally entered into which will ensure the opening of the track at Easter next, and a number of leading racing motorists have expressed their intention of participating in this important event.

The aerodrome will be prepared forthwith and it is hoped the flying school, joy-riding and taxi service will be available in January.

MUNICIPAL AIRPORTS.

Manchester, the home-town so to speak of the pioneer firm of A. V. Roe and Co. Ld., and the centre from which the Lancashire Aero Club draws much of its support, once possessed in Alexandra Park a very usable aerodrome, but is now bereft of any such amenity.

At a private conference held at the Town Hall on Sept. 26, attended by representatives of many important business interests, and of the said aero club, the Lord Mayor of the city undertook to bring before the City Council the desirability of taking steps to provide the city with aerodrome facilities of an up-to-date character.

During the same week the city elders of Cork, in the I Free State, were led to debate upon the desirability of viding that city with an aerodrome. The possibilities of air service which would connect trans-Atlantic steamers England and the main-land of Europe at Cork or Que town was strongly urged upon them, and report says Commandant Fitzmaurice is to report upon the subjec

Inhabitants of Sheffield are also reported to have b exercised in their minds as to the absence of aerodr facilities in the vicinity of the city. A proposal has b made for the formation of a Sheffield flying club, and n tiations to this end are said to have been opened by cer local interests with the Air Ministry. The promoters h to arrange for the use of the war-time aerodrome at (Aston, and to assure that it shall be made suitable for by the heavier types of civil aircraft.

THE HEAVY-OIL ENGINE.

According to *The Times'* New York correspondent an engine burning heavy oil built by the Packard Motor was tested in the air at Utica (Mich.) on Sept. 19.

The engine, which is said to develop 200 h.p., was stalled in a Stinson-Detroiter monoplane and two succes flights were made with it. No details of the engine i other than that it is of the compression-ignition type given.

This is, so far as can be discovered, the first flight m with an engine of this type.

SEAPLANES ON THE ATLANTIC.

Mr. F. T. Courtney reached Southampton on the aftern of Sept. 21 after his unsuccessful attempt to cross the Atla in a Dornier Wal. He is reported by the daily Press have said that although he had expected that his mac would be able to remain afloat in fairly bad weather in event of a forced alighting, it had actually survived a m heavier sea than he had thought possible and had den strated that it would have stood up to a much worse sea.

HERBERT GILHAM.

Those who have been closely in touch with the produc of THE AEROPLANE in the past will learn with deep regre the death of Mr. Herbert Gilham, a partner in Bonner Co. Ltd., the firm which has printed and despatched AEROPLANE since the early days of 1912. Mr. Gilham responsible for the production of the paper and not fo policy, beyond the fact that a printer is always respon along with the editor for the appearance of anything w is libellous, and one admits freely that Mr. Gilham's sense has on several occasions prevented the appearanc statements which, produced in the fervour of controve might very well have been held to be libellous.

For his good advice on these and many other matters has held him in regard. His kindliness and good na won for him the affection of all who worked with him.

Though in his young days an extreme Radical in po and a member of various active political organisations was essentially Conservative in the more important ma of his life, such as the printing and production of n papers, and to him the readers of THE AEROPLANE owe little for the regular and good appearance of this pape

Of late years age and ill health have prevented him taking any very active part in the production of the p but we who have been concerned with it recognise the which we owe him for his help in the past.—C. G. G.

A NOMAD.—The first Gipsy Moth in Canada, outside the assembling-plant of the De Havilland Aircraft of Canada Ltd.

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THE FLYING CLUBS.

[Notice.—*To make more room for matter of greater general interest, the names of pupils under instruction at the Clubs and Schools will in future appear in* The Aeroplane *in the first number of each month only. Club Secretaries are invited to send in more news of happenings on the aerodromes and in the workshops.*—C. G. G.]

The London Aeroplane Club.

[Sec. Harold E. Perrin, 3, Clifford Street, London, W.1.]

Report for week ending Sept. 30.

Flying Time 60 hr. 30 min. *Instruction* 32 hr. 25 min. *Soloists* 28 hr. 5 min. *Instruction.—With Mr. V. H. Baker*—Messrs. L. Hirachand, L. D. Trappitt, P. W. Hoare, C. D. Blackett, G. Charles, J. W. H. Harrison, E. L. Gosling, H. R. Presland, L. Gaywood, H. Sutton, H. D. Wolfson, A. L. Hill, A. D. Blumlein, A. M. Leonard, R. F. Adams, E. Davis, J. F. Wood, D. A. Litchfield, L. Rowson, A. C. Thomas, Miss A. Johnson, Miss Fletcher, Lieut.-Col. A. G. Farfan. *With Mr. F. R. Matthews*—Messrs. A. D. Blumlein, L. Hirachand, B. S. Whidborne, A. M. Leonard, F. J. Puddy, J. M. Symmons, H. A. Giers, G. E. Clair, E. Davis, E. W. Hosley, J. V. Fairbairn, S. Hansel, A. J. Richardson, R. F. G. Adams, J. C. V. K. Watson, C. D. Blackett, J. W. F. Chalmers, J. A. Crane, J. F. Wood, Miss Johnson, Miss Wilson, Miss Cholmondeley, Miss Hicks, Capt. The Master of Gray, Lieut.-Col. A. G. Farfan. *Soloists.*—Messrs. E. S. Brough, H. C. Bergel, W. Hart, S. Hosley, J. W. H. Harrison, C. Campbell, G. H. Craig, N. J. Hulbert, A. Hill, G. Charles, J. W. P. Chalmers, R. Ward, W. L. M. O'Connor, P. W. Hoare, T. Elder-Hearn, J. F. Wood, A. F. Burns, C. E. Murrell, H. Sutton, G. E. Clair, J. V. Fairbairn, E. D. Moss, O. J. Tapper, J. A. G. Haslam, C. Wood, J. C. V. K. Watson, Miss Hicks, Miss Fletcher, Miss Wilson, Capt. Roche-Kelly. *Passengers.*—12.

Notes.—During the week Mr. J. V. Fairbairn and Miss M. Hicks passed the necessary tests to qualify them for their "A" Licence.

Northampton Air Pageant.—The London Aeroplane Club sent G-AABL to the Northampton Air Pageant, the pilots being Messrs. F. R. Matthews and J. M. Symmons.

Monthly Flying Return.—The total flying for the month of September was 305 hr. 15 min.: *Instruction* 187 hr. 40 min. *Soloists* 117 hr. 35 min. During the month 12 members qualified for their "A" Licence.

The Lancashire Aero Club.

[Sec.: F. W. Atherton, Woodford Aerodrome, Stockport.]

Report for week ending Sept. 29.

Flying Time 11 hr. 50 min. *Instruction* 4 hr. 10 min. *Soloists* 3 hr. 55 min. *Passengers* 2 hr. 50 min. *Tests* 55 min. *Instruction.—With Flt. Lt. Todd*—Messrs. Eckersley, Kay, Weale, Ashworth, J. H., Ashworth, W., Goss, Miss Baerlein, Miss Emery. *With Mr. Cantrill*—Mr. Dane. *With Mr. Scholes*—Messrs. Chart, Barlow, Dane, Ginger *With Mr. Brown*—Messrs. Foote, Roberts. *Soloist (under instruction).*—Mr. Weale. *Pilots.*—Messrs. Cohen, Michelson, Twemlow, Lacayo, Crosthwaite, Ruddy, Riley, Mills, Caldecott, Miss Baerlein. *Passengers.*—13.

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. J. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Sept. 29.

Flying Time 26 hr. 20 min. *Instruction* 5 hr. 35 min. *Soloists* 19 hr. 45 min. *Passengers* 1 hr. *Instruction.—With Mr. Beck*—Miss Ellison, Messrs. Brackenbury, Dujardin, Fitton, Gaunt, Lloyd, Ostler, Palmer, A. Senior. *Soloists.*—Miss Ellison, Messrs. Dujardin, Fitton, G. A. Little, A. Senior. *"A" Pilots.*—Messrs. Birch, Brackenbury, Clayton, A. Crowther, Dawson, Dick, Ellison, Mann, Thomson, Wilson, Wood. *Passengers.*—6.

Notes.—On Monday last we took the whole of our fleet of aircraft (both of them); all our really active members (Messrs. Thomson, Clayton and Ellison); and all our Instructors (Mr. Beck) to Brough to witness the launching of the "Iris." The Blackburn Aeroplane Co. were very hospitable and the Yorkshire Aeroplane Club enjoyed its day out very much. Those members who attended are now looking forward to our Christmas weather so that they may get a boat and seaplane training on our aerodrome.

Congratulations to Miss Margaret Ellison on a splendid solo after a lot of perseverance, and even greater difficulties.

The tests for three "A" Licences have been skilfully and su fully attacked this week by Messrs. Fitton, Dujardin, and G. A. In each case they showed accuracy of judgment in landing nea mark. Long may they continue to make soft landings as close to intended destination.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Report for week ending Sept. 29.

Flying Time 40 hr. 27 min. *Instruction* 18 hr. 5 min. *Soloists* 45 min *Passengers* 4 hr. 5 min *Tests* 32 min. *Instruction.— Flt Lt. T. Rose, D.F.C., and Mr. W. H. Sutcliffe*—Messrs. Blak M. C. Wilks, W. Smith, W. L. Handley, F. J. Steward, J. K. M C. T. Davis, H. Coleman, J. A. V. Cook, J. Fitzgerald, J. B. B F. D. Scott, J. A. Ridsdale, D. N. Khatri, S. Duckitt, S. G. J. W. Astley, A. E. Coltman, G. P. Haylock, Dr. W. G. Tilleke, J. C. Chaytor, Mrs. Leigh Fermor. *Soloists.*—Messrs. E. P. Lane, Bednell, R. L. Jackson, W. M. Morris, E. L. Hulme, H. J. Willis, Steward, J. A. V. Cook, S. H. Smith, M. A. Murtagh, E. R. W. J. Halland, J. Fitzgerald, R. C. Baxter, S. Duckitt, G. C. G. Robson, J. B. Briggs, C. W. Fellowes, H. Coleman, J. K. M A. B. Gibbons, E. D. Wynn, S. G. Hall, J. W. Astley, A. E. Col Capt. J. C. Chaytor, Dr. W. G. Tilleke. *Passengers.*—10.

Notes.—Messrs. E. L. Hulme, F. J. Steward and J. A. C. Cook all tests for their "A" Licences.

Dr. W. G. Tilleke, Messrs. J. Fitzgerald and A. E. Coltman first solos.

On Saturday, Flt. Lt. Rose flew XT to Sywell for the Pageant. gratulations to the Northampton Club on a very good first effort.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, Hamble Aerodrome, Southampton.]

Report for week ending Sept. 28.

Flying Time 27 hr. 25 min. *Instruction* 16 hr. 5 min. *"A"* 9 hr. 35 min. *Soloists* 45 min. *Passengers* 30 min. *Tests* 30 *Instruction.—With Flt. Lt. Swoffer and Mr. W. H. Dudley*—M Farmer, Shepherd, Reuther, Buckley, Tobutt, Beagley, Endacott, Gibbs, Evans, Inglish, Evershed, Milford, Mattocks, Lt. Coode, Lt Graz, Miss Home, Cdr. Coveney, Mrs. Gordon Smith, Lt. Roskill, Bell, Major Thorn, Major Jenkins, Lt. Oswald. *"A" Pilots.*—M Wills, Parker, Curtis, Nuthall, Rayson, Sanders Clark, Hayter Heath, S/Lt. Luard, Capt. Kirby, Miss Grace. *Soloists.*—Mr. Lt. Townsend. *Passengers.*—5.

Notes.—We are still struggling along with one Moth but we e to have two machines out in a few days' time. It is good ne hear that the Avian will probably be in commission again toward end of October.

We were unable to fly at all on Friday owing to the vile weat

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

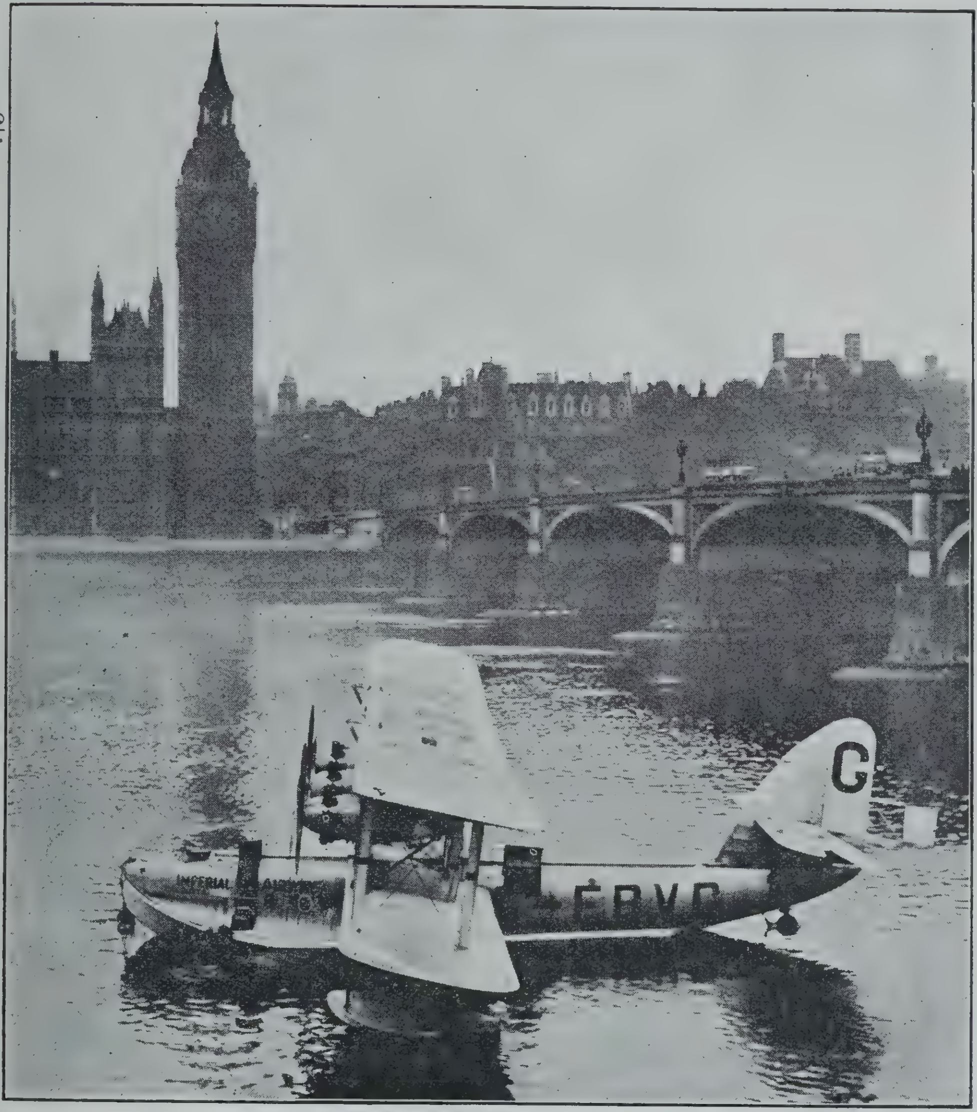
Report for week ending Sept. 30.

Flying Time 29 hr. *Instruction.—With Mr. Young*—Messrs. Justin, W. S. Coates, L. Morter, C. Brown, C. Ransom, G. Thr A. Kirkby, J. Luddington, L. W. Lowen, R. Harvey. *Soloists.*—M W. S. Coates, G. Wharton, N. Brett, E. Varden Smith, E. Lan A. A. Rice, H. Neave, H. Pank, N. Lindley, W. P. Cubitt, Harmer, L. W. Lowen, C. Ransom, R. F. Moore, G. F. Surtees, Harvey, A. G. Marshall, W. A. Ramsay, C. Land. *Passengers.*—

Notes.—The first solos of Messrs. C. Ransom and W. S. Coats very good and we are pleased to see them arrive at this stage.

On Saturday two machines set out for Northampton to visit

STALLING IN.—Mr. Cordes, of Handley Page Ltd., on a slot-winged Cirrus-Moth, descending into Sywell Aerodrome, with slots wide open as an ordinary and neat method of landing and not as a "real emergency" (vide "Notice to Airmen, No. 70,—1928").—("*Aeroplane*" *photograph.*)



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Northamptonshire Club's Pageant. There appear to have been a good number of machines there and we wish the Club every success.

The good weather during the past month is breaking up and the latter part of this week has been nothing but intermittent rain and storms. Flying time suffers accordingly.

On Thursday next and every Thursday fortnight we are holding a lecture, following a tea dance in the Club House. The first lecture is being given by Dr. Odgers, who has chosen "Wind Channel and Streamlining."—G. M.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadleigh, Suffolk.]

Report for week ending Sept. 29.

Flying Time 14 hr. *Instruction.—With Mr. Lowdell* 5 hr. 10 min. *"A" and "B" Pilots* 3 hr. 10 min. *Solo (under instruction)* 3 hr. 55 min. *Passengers* 55 min. *Tests* 50 min. *Instruction.—With Mr. Lowdell*—Mrs. Young, Dr. Dunn, Messrs. Welsh, Hanson, T. and B. F. Marriage, Wedd, Collins. *Solo (under instruction).*—Mr. H. B. Collins. *"A" and "B" Pilots.*—Dr. J. C. Sleigh, Messrs. Billinton, Brown. *Passengers.*—9.

Notes.—Mr. H. B. Collins did his first solo and his tests for "A" Licence during the week.

On Saturday we gave joy-rides to a large party from The Junior over to Sywell on Bluebird SZ for the Northampton Air Display.

The Bristol and Wessex Aeroplane Club.

[Sec.: Major G. S. Cooper, D.S.O., Filton Aerodrome, Bristol.]

Report for week ending Sept. 30.

Flying Time 21 hr. 50 min. *Instruction* 12 hr. 15 min. *Soloists* 7 hr. 40 min. *Instruction.—With Mr. Bartlett*—Miss Miles, Messrs. Davis, Amory, Keeling, Rogers, Rivers-Pollock, Byrnes, Hughes, D. B Singh, R. S. W. Clarke, Tinson, Dutton, B. L. Bathurst. *With Mr. Tratman*—Mr. D. B. Singh. *Soloists.*—Mr. Downes-Shaw, Miss Miles, Messrs. Amory, Keith-Jopp, Greenhill, R. S. W. Clarke, and Hon. B. L. Bathurst. *Cross-Country.*—Mr. Bartlett and Mr. Rivers-Pollock to Bournemouth—Weymouth—Lyme Regis and return. Mr. Downes-Shaw with Mr. Amory to Tiverton and return.

Notes.—Mr. Downes-Shaw left on Thursday in G-EBST to fly to Manchester on business. He met thick weather near Kidderminster, and after three attempts to get through had to return to Brockworth, where he left his machine, continuing his journey by train. He returned on Friday.

Capt. C. F. G. Crawford has resigned the post of Secretary and has been succeeded by Major G. S. Cooper, D.S.O.

The fine weather has now given place to wet, so that flying has been impossible on at least two days of the week.

The Cinque Ports Flying Club.

[Sec.: R. Dallas Brett, 114, High Street, Hythe.]

Report for week ending Sept. 29.

Flying Time 16 hr. 55 min. *Special Journeys and Test Flights* 6 hr. 30 min. *Passengers* 40 min. *Instruction.—With Mr. Clarke*—Capt. Took, Mr. Mackinnon, Mr. Walsh, Mr. Edgson Wright, Mr. Wood, Mr. Skinner, Mr. Maurice Braddell, Mr. Parks. *Soloists (under instruction).*—Mr. Skinner. *"A" Licence Pilots.*—Mr. Skinner, Mr. Story.

Notes.—On Sept. 24, Mr. Clarke and Mr. Mackinnon flew NN to Hamble for the Hampshire Club's dance, returning on Sept. 26. Another of our members, Capt. Rattray, took a party by road.

On Sept. 29 Mr. Skinner of Ashford took advantage of the return of SS to pass his tests for "A" licence, making the seventh certificate the Club has taken since it started operations in the middle of May. We hope Messrs. Mackinnon and Walsh will soon be ready to pass their tests.

The members decided to repaint NN themselves, and there much activity in this direction over the week-end. NN came the London Club, which is apparently subsidised by Mr. Colma paint its machines, in imitation of his indispensable product. was more than some of our æsthetic members could stand.

Arrangements are already underway for another Meeting at Ly next Easter, designed to be bigger and better in every respect last Easter's successful Inaugural Meeting. Special attention wi given to refreshments and facilities for joy riding, the lack of bo which caused some inconvenience on the last occasion. Detai the programme, etc., will be announced later.

The Nottingham Aero Club.

[Sec.: C. R. Sands, Imperial Buildings, Victoria Street, Not ham.]

Report for week ending Sept. 28.

Flying Time 26 hr. 5 min. *Instruction* 5 hr. 45 min. *"A"* 9 hr. 20 min. *Soloists (under instruction)* 6 hr. 20 min. *Passe* 2 hr. *Tests* 2 hr. 40 min. *Instruction.—With Mr. Martin*—M Thorpe, Lucas, Hutchinson, Cox, Cudlip, Austin, Kay, McWil *"A" Pilots.*—Messrs. Wynn, Bradley, Pilgrim, Selvey, Whitby, Austin, Granger. *Soloists (under instruction).*—Messrs. Hancock, side, Winn, Austin, Glenn. *Passengers.*—12.

Notes.—During the early part of this week fog and rain restricted flying. On Wednesday, Mr. Shipside,—one of our r *"ab initio's,"*—who was doing his height test, succeeded in l the aerodrome so successfully that he discovered a village near She Apparently he was more interested in height and clouds than nall Aerodrome. However he made a good landing, choosing a field alongside a main road and not too far from the vi hostelry (unfortunately D.O.R.A. intervened). Mr. Martin went by road to fly it back and found Mr. Shipside and machine rounded by a crowd of 300 people. Apart from the fact tha should not have lost sight of the aerodrome he put up an exce show.

We have a lot more interesting news but no time to write as the Skywriters have departed and we are busy taking ar ventory.

The Liverpool and District Aero Club.

[Hon. Sec.: W. F. Davison, Hooton Park Aerodrome, Hooton,

Report for week ending Sept. 22.

Flying Time 29 hr. 20 min. *Instruction* 16 hr. 50 min. *Soloists* *Joyrides* 12 hr. 30 min. *Instruction.—With Flt. Lt. Allen*—Mrs. Miss Evans, Miss Hughes, Messrs. Moulsdale, Henderson, Andrews, Alcock, Edgar, Goodman, Sparke, Meistrand, Reville, C Barber, Foley, Mines, Curwell, E. H. Williams, Chatterley, Wi Barnes, McGeagh, Rev. Woosnam Jones. *Soloists.*—Messrs. Be Henderson, Willcox, Moulsdale, Sparke, Francis, Ward, Leete, B Brooking, McClure, Pixton. *Passengers.*—7. *Cross-Country.*- Crosthwaite and Miss Colwell to Woodford (Lancs. Club) and re

Notes.—Mr. and Mrs. "Dick" Bentley returned to Stag La Monday morning, leaving at the murky hour of 06.00 hrs.

Messrs. Hall and Faulkner of the Lancashire Club visited us o 19th in Avro RR and Mr. Lacayo and passenger on the 20th i same machine.

Mr. Bunning landed his Renault Avro on Friday owing to visibility, *en route* Prestatyn to Sale.

Report for week ending Sept. 29.

Flying Time 27 hr. 45 min. *Instruction* 14 hr. 15 min. *Cross-Co* *Flights* 5 hr. 20 min. *Instruction.—With Flt. Lt. Allen*—M Alcock, Barnes, Barber, Cowan, Curwell, Davey, Edgar, Eills, F Goodman, Keniston, McGeagh, Reville, Sparke, E. H. Wil

ROLLING IT IN.—Mr. Atcherley going into a slow roll at Sywell, on Flt. Lt. Soden's Genet-Moth, by way of impressing on the indigenous Northantonians the safety of flying.—("Aeroplane" photograph.)

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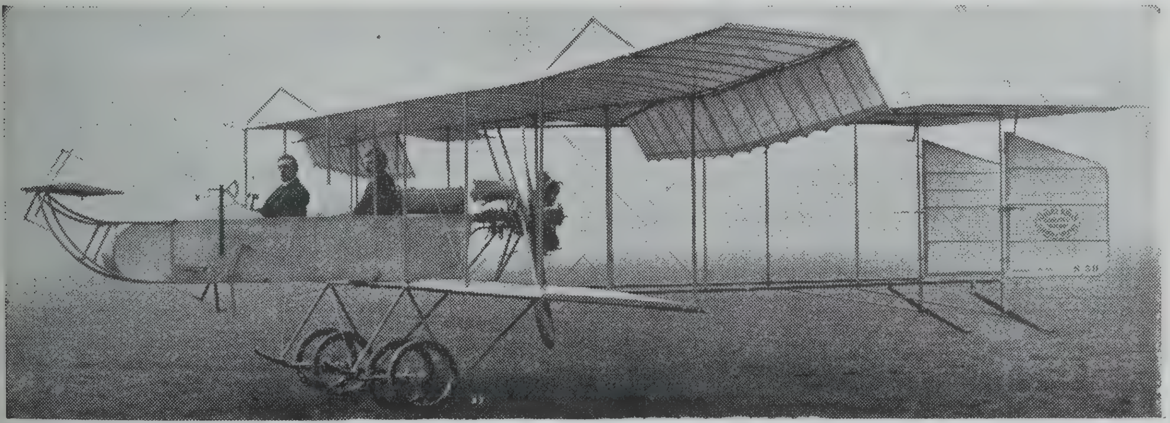

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son, Rev. Woosnam-Jones, Mrs. Eills, Miss Evans, Miss Hill, Miss Hughes. *"A" Pilots.*—Messrs. Brooking, Davison, Leete, Ward. *Soloists (under instruction).*—Messrs. Barber, Francis, Henderson, Moulsdale, Willcox, E. H. Williamson. *Passengers.*—6.

Notes.—On Wednesday Mr. Ward took one of our Avians on a 40-mile cross-country to Woodford. The return journey took about 3 hours as the machine, which is lettered with the mystic sign "XX," took the bit between its teeth and refused to return by the direct route until it had visited its spiritual home at Burton-on-Trent. After landing there and refilling liberally, it returned in quite a docile (if unsteady) manner to Hooton, arriving just before dusk. After a good night's rest XX was as fit as ever in the morning.

Visitors.—23rd General Brancker—G-EDCA. 24th The Duchess of Bedford—Moth G-EBRI (Barnard Pilot)—London—Scotland. 28th Renault Avro—Lancs. School of Aviation (Lytham). Bringing Dirt Track Expert—Taylor returned following day. Messrs. Bailey and Drew, pilots of the Calcutta, which is flying between Liverpool and Belfast, paid us a visit on Thursday evening. Mr. Marsden of the A.I.D. visited us on Sunday last and was very pleased with his inspection.

The Northamptonshire Aero Club.

[Hon. Secs.: P. G. Hayward and W. G. Williams, The Grand Hotel, Northampton.]

The Northamptonshire Aero Club is to be congratulated on putting up a very fine show for its Opening Pageant at Sywell Aerodrome on Sept. 29. The weather was all against it,—cold and windy, with rain in the morning and threats of it all the afternoon,—but there was quite a large and enthusiastic crowd and the turn-out of aircraft was very good indeed.

There has never been any real flying anywhere nearer to Northampton than the old R.F.C. aerodrome at Lilbourne, near Rugby. And yet to the district belongs the distinction of having seen some of the earliest aeronautical experiments in this country, namely those made by the late Percy S. Pilcher, who was assisted by the Hon. Adrian Verney-Cave, now Lord Braye. Mr. Pilcher was, in fact, killed while experimenting with a glider on Mr. Verney-Cave's estate nineteen years ago almost to the day of the Northampton Pageant.

The organisation of the meeting was quite good for a first attempt and speaking for the aviation people, at any rate, everybody enjoyed themselves thoroughly. In fact it was one of those pleasant afternoon-party shows very like the first meeting of the Suffolk Club at Hadleigh.

There were twelve Moths present:—Jackaman (RT), Soden (OU), Malcolm (AAAI), Broad (YK), Cordes (KF), Rose (XT), Tapper (UR), Miss O'Brien (OS), Corbitt (OX), Miss Spooner (AAAL), Matthews (AABL), and A. J. and G. Linnell (SA). There were five Avians: Percival (YR), Lady Heath (ZM), Moore (XE), Lines of the *Daily Sketch* (WV), and Brown (XD). There were two Henderson joy-ride Avros, Henderson (ST) and Davis (WJ), there was a Suffolk Bluebird, Sleigh (SZ), there was the Halton monoplane, Trench (OO), there was a privately-owned Austin Whippet, King (PF), there was a privately-owned S.E.5a, Maddox (QQ), and there was the Spartan, Banting. Also there was the official Moth of the Department of Civil Aviation, EDCA, piloted by Flt. Lt. Seymour, conveying Air Vice-Marshal Sir Sefton Brancker to give his blessing to the proceedings.

Incidentally, the compiler of the programme was a trifle generous in his award of ranks and titles. Sir Sefton appears as "Air Vice-Marshall, Major-General Sir William Sefton Brancker, K.C.B.," and in the list of Vice-Presidents appears "Colonel E. L'Estrange Malone, M.P.," when, in fact, that Member of Parliament is not entitled to Service rank. On the other hand, Lord Braye, a Vice-President, appears deprived of his final "e."

The Club is fortunate in starting with three private owners among its members. The brothers A. J. and G. Linnell between them own Moth EBSA and Mr. E. R. King owns Austin Whippet PF.

The proceedings opened with the usual parade of aircraft and the sky was so thick with them that one or two of the most experienced pilots descended after one lap of the aerodrome. Thereafter Mr. Cordes gave a pretty exhibition of the Handley Page slot as fitted to a Moth. Next came a demonstration of "Progress," starting with an Ancient Briton in a hearth-rug, and progressing through the high bicycle and the motor-bicycle and the motor-car to the aeroplane.

This was followed by a bombing attack with paper flour-bags by two aeroplanes on a particularly agile AC. car which narrowly escaped being hit. Then Mr. Atcherley on Flt. Lt. Soden's Genet Moth did some slow rolling and other pretty things, but the clouds were too low to allow an outside loop.

The comic race for all forms of transport, which followed, struck one as being rather dangerous. The competing pilots had first to run 50 yards, then cycle 50 yards, then ride donkeys 50 yards, then scramble into overalls, and drink a bottle of beer,—out of the bottle. After this they were mercifully conveyed in a car to their aeroplanes, which they had to take-off and fly round a course. After so much unaccustomed exercise any pilot with a flaw in his heart might well have collapsed through drinking quickly, whether beer or anything else; and although the ride in the car gave time enough to decide whether it should become an ambulance, there was always a possibility that a pilot might collapse in the act of taking-off in his aeroplane.

However, fortunately nothing happened and the finish of the race was close enough to have beaten Mr. Goodman-Crouch's best, though one has a horrible suspicion that it was intended to be formation flying rather than an all-out finish. If our best aviators behave so, how can we believe that dirt-track races by a limited team of professionals are fought to a finish.

Following this Mr. Broad gave one of the prettiest exhibitions of trick-flying and crazy-flying that one has seen. Thereafter there was some balloon bursting.—And so home, everyone well pleased.

Before the show the visiting pilots were entertained to lunch by the Organising Committee, and afterwards they were entertained to dinner at Northampton. So, if the Club was well supported by the sporting crowd in aviation, it certainly did its best to support them in return.

One can wish the Club nothing better than that it may continue as it has begun, and that in due course it may be rewarded with a subsidy from the Air Ministry.—C. G. G.

FLYING SCHOOLS.

The De Havilland Flying School.

Report for week ending Sept. 23.

Flying Time 756 hr. 50 min. *Instruction—Dual* 277 hr. 10 min. 365 hr. 5 min. *Other Flying* 114 hr. 35 min.

Notes.—During the last month 36 pupils have completed courses, the work on the school is now slackening a little in conseque

Two of our Indian pupils have completed their elementary cou and are now almost ready for solo on advanced types.

Among the several first solos accomplished was that of Mrs. A Butler, wife of the chairman of the De Havilland Aircraft Co. Mrs. Butler's solo was made after only 6 hr. 55 min. instructio brilliant achievement. Mr. C. S. Napier, son of the chief of D. Na and Son Ltd.—of Lion engine fame—was another successful soloist.

Notable visitors during the month have included Mr. J. A. Wil Director of Civil Aviation in Canada, who flew to Cambridge i school Moth, and Admiral Mark Kerr, who also enjoyed a short on the school.

The production of Gipsy engines has now settled down in earn and already many private deliveries have been made.

Report for week ending Sept. 30.

Flying Time 130 hr. 30 min. *Dual* 38 hr. 30 min. *Solo* 41 *Other Flying* 51 hr.

During the week two pupils obtained their "A" tickets another, Mr. R. F. G. Lea, a son of Sir Thomas Lea of Dunley H Stourport, made an excellent first solo.

Mr. K. M. Raha, one of our Indian pupils, has now done all tests on an advanced type of machine in a most competent man His two other compatriots, are also progressing extremely well.

A new pupil to join our school is Capt. Rivett Carnac, Chief stable of Huntingdon. This is certainly a most encouraging sign the advancement being made in all professions of "air-mindedne and we trust that Capt. Rivett Carnac's lead will eventually give p to a "flying squad" in its most literal sense.

On Saturday we gave joy-rides to a large party from The Ju Institute of Engineers. They were all thoroughly delighted and w inclined to marvel at the ease and practibility of the Moth.

Several Gipsy Moths were delivered during the week, amongst th taking delivery being Miss W. E. Spooner, the Hon. G. Cunliffe, Mr. G. A. R. Malcolm, our Sales Manager.

The Henderson Flying School.

[Managing Director: Lt.-Col. G. L. P. Henderson, Brooklands A drome, Byfleet.]

Report for week ending Sept. 27.

Flying Time 21 hr. 20 min. *Instruction.—With Col. Henderso* Messrs. May, Kerr, Salah, Oldmeadow, Daniel, Hsiao, Brooks, D'E court. *With Mr. H. D. Davis*—Messrs. Groner, Hsiao, Swann, K D'Eyncourt, Daniel, Garthwaite, Mrs. Monkton, Mrs. Scott. *Soloist* Messrs. Pickthorn, Hsiao, D'Eyncourt, May, Daniel, Oldmeadow, H

Notes.—Over 400 passengers were carried during the week.

Mr. S. Daniel has nearly completed all his solo flights for "B" Licence.

Col. Henderson and Mr. Davis flew to Northampton this week- to attend the Northamptonshire Aero Club Pageant and were gi a very good welcome by the Club Officials and Members. They a very good week-end.

AN OPPORTUNITY.

The Editor of The Aeroplane has heard of an impend vacancy at one of the Flying Clubs for an assistant to Aerodrome Manager. The job would go to a young, k man who would take very small pay and wants to learn fly. Anyone who would be prepared to take the job on th terms should write to the Editor, The Aeroplane, Piccadilly, W.1, marking the letter "Aerodrome."

MOTHS IN CANADA.

Dominion Airways, Ltd., of Vancouver, B.C., are operati a flying school with D.H. Moths. Primary instruction given on ordinary Moths, whereas all solo flying is ma of Moths fitted with the Handley Page automatic slot gear.

A new Light Aeroplane Club has been formed at Ka-loops, British Columbia, a township of 6,000 inhabitants the main Canadian Pacific and Canadian National Railwa Application has been made to the Department of Defe for the loan of a D.H. Moth.

The first D.H. Gipsy-Moth to be seen in Canada w exhibited at the Toronto Exhibition in August.

AVRO AVIANS IN THE U.S.A.

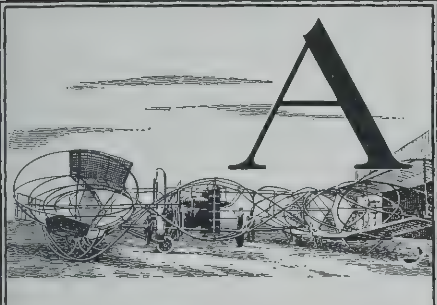
Messrs. Brock and Schlee have been appointed distribut for Avro Avians in Northern New York and Ohio and ha ordered six machines of this type through Air Associat Inc., of New York City.

Air Associates, Inc., who are the New York distribut of Avians, have recently sold machines to Geo. P. Putna of new York City, William Hooker of Bayside, L.I., a H. B. Lundberg of Lansing, Mich.

THE LATEST ATLANTIC ATTEMPT.

Lt.-Comm. Macdonald, R.N. (retd.), with his long-range Havilland Moth (Gypsy engine) has reached St. Johns, Newfoundland, by steamer from Liverpool. He is reported to i tend to start on an attempt to fly across the Atlantic as so as weather conditions are favourable.

Tubes for Aircraft



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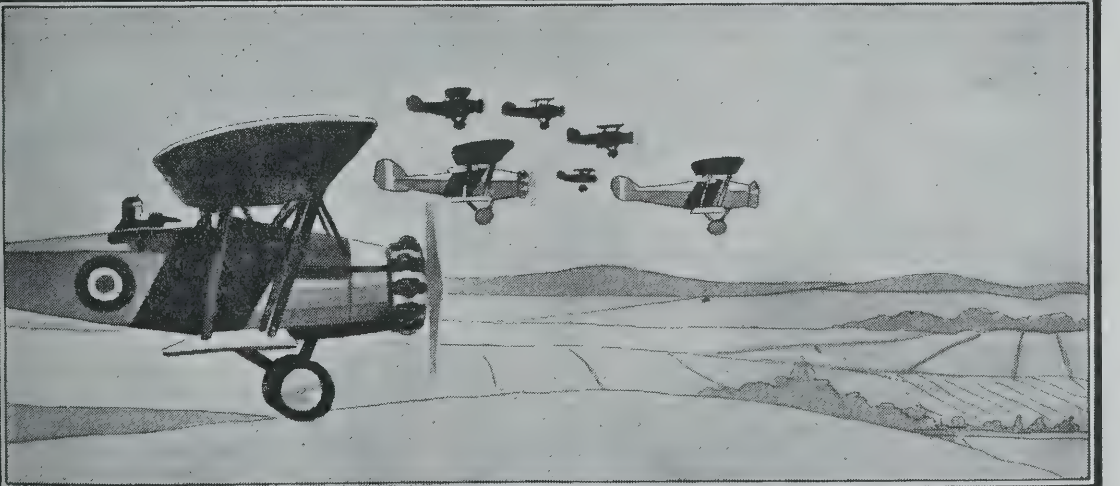

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 9; Monday, 31; Tuesday, 36; Wednesday, 27; Thursday, 28; Friday, 28; Saturday, 29.

Imperial Airways Ltd. :
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 75, passengers 605, freight 24 tons.

Air Union :
Paris—London and return: Machines 44, passengers 172, freight 12 tons.

K.L.M. :
Amsterdam—Rotterdam—London and return: Machines 24, passengers 131, freight 8 tons.

Sabena :
Brussels—London and return: Machines 10, passengers 37, freight 2 tons.

Deutsche Lufthansa A.G. :
Amsterdam—London and return: Machines, 12, passengers 47, freight 3 tons

Miscellaneous :
British machines, 6, passengers 3.
Foreign machines 1, passengers 0.
Total number of trips by British Machines, 81, carrying 608 passengers. Foreign Machines, 103, carrying 390.

COMPARATIVE FIGURES.

Week ending Sept. 29 :
Machines, 184; Passengers, 998; Crews, 355; Total personnel, 1,353.
Corresponding week, 1927 :
Machines, 161; Passengers, 914; Crews, 314; Total personnel, 1,229.
Corresponding week, 1926 :
Machines, 95; Passengers, 536; Crews, 125; Total personnel, 661.
Corresponding week, 1925 :
Machines, 94; Passengers, 381; Crews, 122; Total personnel, 503.
Corresponding week, 1924 :
Machines, 113; Passengers, 484; Crews, 142; Total personnel, 626.
Corresponding week, 1923 :
Machines, 79; Passengers, 238; Crews, 108; Total personnel, 346.
Corresponding week, 1922 :
Machines, 98; Passengers, 330; Crews, 159; Total personnel, 489.
Corresponding week, 1921 :
Machines, 75; Passengers, 227; Crews, 98; Total personnel, 325.
Corresponding week, 1920 :
Machines, 131; Passengers, 222; Crews, 152; Total personnel, 374.

Croydon Notes.

On Friday of last week Croydon assumed for the first time in many months the traditional aspect of a British aerodrome. That is to say that it became a cold damp cheerless-looking place, closely overlaid by heavy clouds, from whose surface no airscrew could raise any suspicion of dust. And according to the weather map similar conditions prevailed over most of the Western European air route again.

These conditions fortunately did not greatly interfere with traffic, though one machine carrying goods bound for Paris decided not to proceed past Lympne in the early afternoon and two other machines which left late during the afternoon also decided not to risk the Channel in the rapidly-growing darkness.

From now onwards such weather as that of Friday must be expected at intervals, even if the Autumn and Winter live up to the precedent of the past exceedingly satisfactory Summer. The shorter hours of daylight will in any case mean reduced services and falling traffic.

However bad the winter may or may not be Croydon and all concerned may face it with the knowledge that nothing can now spoil 1928's record as a year of remarkable progress.

To what extent this progress has been the result of exceptionally good weather, and how far the moral effect of the opening of the new buildings has contributed to it is impossible to gauge.

But the traffic figures week-by-week have shown—and even now continue to show—an increase in passengers of somewhere between 40 and 60 per cent. over the best week of any previous year, and the goods traffic has if anything increased in even greater proportion. This increase would have been still greater—at any rate on the British services—had Imperial Airways had machines to cope with the demand for seats.

And whatever Winter may bring Croydon can look forward through it to the inauguration next year of the through Service to India which should mark the beginning of a new phase in British Civil air transport.

The Fokker F.VII-3m which belonged to the late
Lowenstein has remained in Imperial Airways' sheds s
the original owner's decease without finding a purcha
There is now a distinct likelihood that it will shortly le
Croydon, for it is reported that Lt.-Comm. Glen Kids
R.N. (retd.)—who not long ago flew home from Malta i
Moth—intends either to charter or to purchase the mach
and, accompanied by an experienced civil pilot, to fly i
East Africa for a big-game shooting expedition.

Those concerned with the control of traffic in and ou
Croydon are a little perturbed about the possible dar
during the Winter of odd private aircraft which may fly ab
entirely unannounced, and do not generally carry w
less. The standard British light aeroplanes are in th
selves much easier and safer to fly in conditions of
visibility and restricted landing facilities than are la
transport machines, and though the average private ow
will not usually be anxious to fly in really bad conditi
some of them will pretty certainly not give up flying a
gether because fog or low cloud is likely to be encountere

Unless a private machine is either leaving for, or arriv
from, abroad, Croydon will generally know nothing of
whereabouts. And if such a one happens to be threading
way up one of the narrow valleys leading to Croydon,
meets an air line machine going in the opposite direct
serious results may ensue.

What is needed is the provision of a really light and sa
factory wireless receiving set for the light aeroplane. T
would allow Croydon to issue a general warning that s
and such an air line machine was using such and suc
route and that all other machines in the neighbourhood m
keep a look-out.

THE LIVERPOOL—BELFAST EXPERIMENT.

The experimental service between Liverpool and Bel
run by Imperial Airways during the Liverpool Civic W
(Sept. 24—29) has proved so successful in attracting
sengers that Imperial Airways have decided to continu
fly between the two ports for a further week. The S
Calcutta flying-boat (three Bristol Jupiter engines)
carried her full complement of fifteen passengers on e
trip and many applications for seats have had to be refu

The only difficulty experienced has been caused by
unsatisfactory conditions encountered on the Mersey at
scheduled time of departure. Thick, smoky fog has
general every morning, and this in conjunction with
heavy river traffic, and strong tides, has made it imposs
to leave the Mersey with that punctuality usually obse
by Imperial Airways.

For this reason the service to be run during the pre
week will be reversed. The Calcutta will spend the nigh
Belfast, leave there for Liverpool each morning and re
each afternoon, thus avoiding the morning fog in the Mer

Great interest has been created in Belfast. The Calc
has taken the Lord Mayor of Belfast and several member
the Government of Northern Ireland for trips round
City. Press photographers have been given opportunitie
photographing Belfast from all sorts of unaccustomed ang

In addition to passengers an average of 15 lbs. of le
mail have been carried on each trip, together with sev
hundreds of pounds of newspapers, and, on the outward
from Belfast, consignments of eggs and other perish
produce.

Unfortunately the attempt to evade fog by reversing
arrangement of the service has not proved completely
cessful, for on Monday fog was so thick at Belfast as
make it impossible for the Calcutta to leave at all on
day.

[Which is precisely in accord with the opinions expre
in this paper when this unworkable service was first boo
by the expert of the Air League. And the normal
weather for this sea-area is still to come.—C. G. G.]

ANGLO—IRISH AIR SERVICES.

According to a report from Belfast Mr. G. C. Gore-Cre
the representative of an English syndicate which prop
to provide Belfast with a large new modern hotel, has
formed representatives of the Irish Press that an Eng
company with a fully subscribed capital of £150,000 is
process of formation for the purpose of operating An
Irish air services which are to start on Mar. 1 next year

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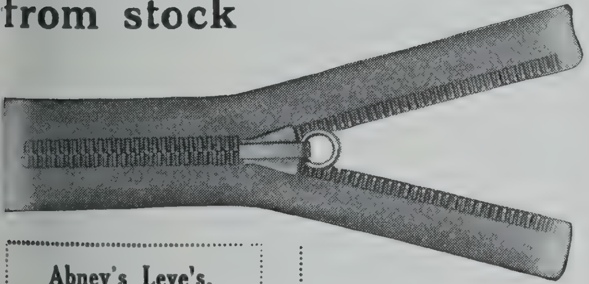

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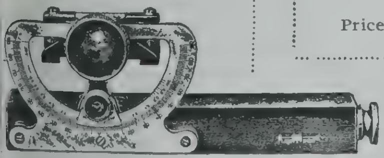

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The routes to be served are to be Croydon—Belfast direct, Belfast—Dublin—Liverpool, and Croydon—Belfast—Dublin—Queenstown—Croydon.

Four American monoplanes to be used on these services are reported to be under construction.

Mr. Gore-Crellin is alleged to have stated that "five private aero services had guaranteed subsidies if these should be necessary"—whatever that may mean. Anyhow these optimists are to be encouraged, if only because they spend money on flying,—for this is good so long as the money is not extracted by Law from the pocket of the Taxpayer and dispensed as a subsidy.

Still, one doubts the complete accuracy of the statements attributed to Mr. Gore-Crellin. And one is certain of the non-success of the scheme,—at any rate for another five years or more.

AN INDIAN AIR LINE.

According to reports published in the daily Press, the Finance Committee of the Indian Legislative Assembly has approved the proposal of the Government to ask for tenders for the running of a regular weekly aeroplane service connecting Karachi to Rangoon. This service is to be operated in three sections, Karachi—Delhi, Delhi—Calcutta, Calcutta—Rangoon, and will receive subsidies from the Government.

Work on the necessary ground organisation for the route from Karachi to Calcutta is already in hand. The necessary preparation for the Calcutta—Rangoon extension will be started as soon as funds permit, as will also the construction of an aerodrome at Bombay.

One of the stipulations which the Government of India will enforce in any contract for this service is that only three-engined machines of approved British construction shall be used.

The through service to be run from London to Karachi by Imperial Airways is expected to start in April, 1929. This will, it is hoped, be extended to Bombay when the Bombay aerodrome is ready for use.

The proposed Indian services will give connections with the Imperial service making it possible for passengers and mails to reach Delhi in seven, Calcutta in eight and Rangoon in nine days instead of sixteen, seventeen or nineteen days by sea and train.

A SOUTH AFRICAN AIR MAIL.

The Times of Oct. 2 reports that a daily service of air mail despatched from Beira (Portuguese East Africa) to all African destinations which are served through Salisbury (Rhodesia) began on Oct. 1, in place of the tri-weekly service hithe in force.

The report states that this increased service has been m necessary by the great increase in the flow of goods thro the port of Beira. There are hopes that it will avoid del hitherto caused by consignments having to wait the arr of clearance documents by the more limited original serv

So far as can be discovered the report is the first indicat yet published in this country of the existence of any mail service between Beira and Salisbury.

K.L.M. PROGRESS.

According to a report in *The Times* of Oct. 2 Mr. H Martin, of the K.L.M., addressing the Dordrecht Cham of Commerce, stated that during the last four years service had reduced the costs of air transport from 6s. to 1s. 11d. per ton per kilometre (say from 11s. to 3s. per ton-mile). This latter figure was, he claimed, approached by any other air line in the World.

Mr. Martin said the great ambition of the company to establish regular air communication between Holland the Dutch East Indies. The machines now flying to Bata for use in that colony were taking twelve days for journey, but when the route had been properly organ this would be reduced to six days, and later, when ni flying became possible, to four, or even three, days.

[Which sounds optimistic, but is in fact perfectly e to accomplish with proper ground organisation in acc with the doctrine of Paul Henderson.—C. G. G.]

PERSONAL NOTICES.

FORTHCOMING MARRIAGES.

GREEN—HENNESSY.—A marriage has been arranged, and shortly take place, between George Douglas Green, R.A.F., only so the late Dr. and Mrs. G. R. Green, of Ripon and Portmadoc, Dorothy Mary, only daughter of Col. J. P. C. Hennessy, C.M.G., (retired), and Mrs. Katie Hennessy, of Keystone, Hunts.

MILES—BROWN.—The engagement is announced, and the marr will take place in December, between Wing Cdr. C. C. Miles, R. and Miss Sydney Brown, youngest daughter of the late Mr. Jo Brown and Mrs. Brown, of Stocksfield, Northumberland.

BIRTHS.

ROBERTS.—On Sept. 25, at Queensbridge, Ellesmere, to Mary, of J. V. Roberts (late R.A.F.)—a son.

VAUGHAN.—On Sept. 9, at 1A, Hargood Terrace, Stoke, Devon to Margaret, wife of Flg. Off. E. S. C. Vaughan, R.A.F.—a son.

WEIGHILL.—On Sept. 20, at 34, Castelnau Mansions, Barnes Irene (*née* Drury Baker), wife of Flg. Off. R. G. Weighill, R.A a son.

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"*MORNING POST*,"
8*th May*, 1928.

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THE A.A. AND AVIATION.

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INCORPORATING AERONAUTICAL ENGINEERING
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ON THE AUTOMOBILE ASSOCIATION AND AVIATION.

ne of the rising stars of British Aviation remarked the er day, 'The proper function of Civil Aviation is to en- e us to become Europeans.' That phrase deserves to ome historical along with Mr. Churchill's 'Civil Aviation st fly by itself.' Both express fundamental truths.

t is all very fine to subsidise Civil Aviation at first for pecific purpose, namely to show what air transport can as in the matter of Imperial Airways, and to make the ion air-minded, as in the matter of the Flying Clubs. unless Civil Aviation can pay its own way, obviously cannot succeed. Similarly, though we can get quite a d deal of fun out of flitting about our own funny little nd, the real joy of flying is expressed, quite uninten- ally, in Mr. Kipling's lines—

'Take hold of the wings of the morning
'And flop round the earth till you're dead.'

he rest of the poem in which those lines occur (no prize red for locating them) has quite a bearing on the ulti- e development of Civil Aviation in its relation to the ish Empire. Actually, flying about Great Britain stands about the same relation to the real uses of Civil Aviation driving round Richmond Park does to a proper motor r. And the air lines which the experts of the Air League so anxious to have organised in Great Britain would, nyone were silly enough to start them, stand in about same relation to a real air line as a hotel 'bus service a country town does to the great motor 'bus services ch now run between London and Bristol, and our other vincial cities.

Air Touring.

here is no doubt that to get the full benefit out of flying t of it has to be done abroad. And anyone who has wed the doings of private owners during the past excel- Summer must have noticed that after the would-be tor has felt his wings by a few little half-day jaunts r the length and breadth of England, the very first thing does is to go for a tour on the Continent. Those who more blessed with time and money even extend their rs to Africa and Asia. These pioneer tourists are in , with all due respect to their venturesomeness, ely the straws which show which way the wind blows.

In this connection we shall do well to consider that any considerable extension of air touring on the Continent must very soon have a political significance, which will grow rapidly as the amount of flying grows. The more one knows of one's neighbours, the less one is likely to fight with them, so long as they happen to be of the same breed as oneself.

Closer acquaintance may not necessarily lead to liking them better, for there are some people who are much more charming at first meeting than they are when one gets to know them intimately. But even so, the better one knows them the less one is likely to come to blows. There are those, Mr. H. G. Wells among them, who regard the aeroplane as the Dove of Peace and hold that as frontiers mean nothing to aeroplanes frontiers must in time be abolished. There is something in the idea, but not so much as they would have us believe.

Nevertheless, without going so far as to believe in, or hope for, or even wish for, a United States of Europe, we may well look forward to a time when that portion of Europe West of Warsaw, which is inhabited by people of the same breed as ourselves, may attain to a League of European Nations, Kingdoms and Republics alike, which will assure our safety against the Eastern barbarians.

To this end, as well as for our own private entertainment and commercial profit, European touring by air is greatly to be encouraged. And any organisation which makes easier and safer air communication between the Nations will definitely confer a benefit on humanity.

The Advent of the A.A.

In May last one published in this paper a short note indicating that the Automobile Association would probably soon be taking a hand in Civil Aviation. At that time one went no further than to suggest that the A.A. might organise air touring in the British Isles and set up an inquiry bureau at which people wishing to fly about this country could discover the whereabouts of suitable landing grounds and so forth. Since that date, without making any fuss, the A.A. has been working a kind of experimental Air Department, presumably by way of seeing how such work fits with the existing organisation of the Association.

The results have been entirely satisfactory,—at any rate

A. A., SIR!—Scouts of the Automobile Association helping the departure of Sir Sefton Brancker's Moth, G-EDCA, from Sywell. The A.A. scouts, who are ex-R.A.F. personnel, some of them former serjeant-pilots, are now regular and most useful attendants at all flying meetings. They carry collapsible chocks and all sorts of odds-and-ends of aircraft necessities. They operate a weather-map and forecasts for the benefit of home-going pilots. And they are generally useful. Their activity is shown by the way in which the movements of the man in front have beaten the camera.—("*Aeroplane*" *photograph.*)

from the point of view of aviators. And the work that has already been done indicates the immense possibilities of the Association for the future good of British Aviation.

If the Association goes on as it has begun the time will soon come when European air travellers, whether for pleasure or for business, will bless the name of the A.A. and will recognise how much they owe to the initiative, energy and driving power of Major Stenson Cooke who built up in the early days of motor-cars the vast organisation which is now beginning to make itself felt in aviation.

The A.A. first made itself manifest at the Blackpool Meeting when certain of the well-known A.A. scouts who had gone there primarily to assist in the parking of cars and so forth, took a hand in helping the owners of visiting aircraft,—other than those who were being looked after as competitors.

AERODROME SERVICE.

The A.A. had its own parking place, and the men in charge saw that the machines were properly picketed in case of strong winds, that the engines were properly covered and so forth. A species of clip, descended from the common or back-garden clothes-peg, was used to prevent rudders, elevators, and ailerons from flapping in the wind. And when the owners wanted to go away the A.A. men started the engines, provided their own breed of pocketable wheel-chocks so that they could run up the engines properly, and generally made themselves useful. The men selected for the job were all ex-R.A.F. personnel, under a serjeant who had been an N.C.O. pilot.

Since then at the various minor meetings up to the present, the A.A. men have been a regular and highly appreciated part of the performance.

One of the most useful of their activities has been the operating of a weather map. They have been in direct telephone communication with the Meteorological Department of the Air Ministry and towards the end of the afternoon they have marked on their map the state of the weather in various directions and the state of the aerodrome on which they were operating. This map is modelled on the big map at the London Terminal Aerodrome at Croydon.

Thanks to the accuracy with which it has been worked, visiting pilots have been able to see at a glance the kind of weather they were likely to meet on their homeward journey. And quite often pilots who have found their home aerodromes threatened by unpleasant weather have chosen to stay the rest of the week-end where they were or to fly off to other districts where conditions were more alluring.

Here, even at the risk of seeming ungrateful, one may perhaps be forgiven for interpolating the question of whether A.A. personnel ought to wear R.A.F. wings on the strength of having been pilots? This applies not only to those who have been so valuable on aerodromes, but also to a good many of the road organisation who have been R.A.F. pilots. They are, of course, entitled to wear their medals when in A.A. uniform, but one is under the impression that wearing of R.A.F. wings is contrary to King's Regulatic

There is, however, no reason why those A.A. officials v have been pilots should not wear wings of some other sign, as do the pilots of Imperial Airways, just to indic to aviators with whom they come in touch that they h been pilots and are therefore qualified to handle airc better than those who have not flown,—though, for matter of that, there are plenty of mechanics, in and ou the R.A.F., who can handle aeroplanes on the ground vas better than the pilots for whom they have to work. S a man who has been a pilot is certainly entitled to let fact be known for it will naturally indicate to other aviat that they can talk to him as a brother pilot.

LOCATING AERODROMES.

Among the work which the A.A. has done in a quiet v since its entry into Civil Aviation some five months has been the examination of a very large number of ae dromes and the compilation of a register showing wh aerodromes are fit for use and which are not. One is t quite unofficially, that some hundreds of fields which h at one time or another been used as landing grounds h been inspected and that an amazingly small number them have turned out to be fit for use to any other tha highly skilled pilot.

Therefore pilots who think that they can cheerfully t round the country and land in any field which they know have been used at some time or other by a joy-ride firm be well advised to go to the A.A. at Fanum House and cover which of those fields are in fact fit for use.

Here one would remark that whatever one says in t article about the doings of the Automobile Association not been gathered from official sources of any kind. It simply come to one through watching the work of the A men and through conversation with private owners others concerned with Civil Aviation who have benefited the good work of the A.A. and can see the immense fut possibilities of the organisation.

There is much to be done by the A.A. in the way of kee ing a constant check on the condition of existing aerodrom And one hears that a good deal has already been done a in the way of inducing owners of land to permit the use certain parts of their ground as landing places near tow or villages which aviators are likely to want to visit.

ROAD SERVICE.

Also one hears that permission has been got from the Ministry for pilots to drop near A.A. telephone boxes m sage-bags of an approved type containing messages to transmitted by the local A.A. man on point duty.

An example of the usefulness of this was shown some ti ago when a pilot was taking a relative to a certain town business. The time of his arrival was uncertain, so definite arrangements could be made for transport from t local temporary landing ground to the town. Consequen

AERODROME SERVICE.—A private owner's Cirrus-Moth being started up by Serjeant McKay (late N.C.O. pilot, R.A.F.) and one of his assistants.

192,000 engine miles without mishap!

Successful Completion of World's Greatest Flight

ON Sept. 15th the four Royal Air Force Supermarine-Napier "Southampton" flying boats, each fitted with two Napier Lion engines, which left England in October 1927, arrived at Singapore, having flown in formation to Australia, round the coast of Australia and back to Singapore—a total of 192,000 engine miles. Never before has such a flight been accomplished.

No mechanical trouble was experienced during the flight, thus further emphasizing the amazing reliability of the Napier engines.

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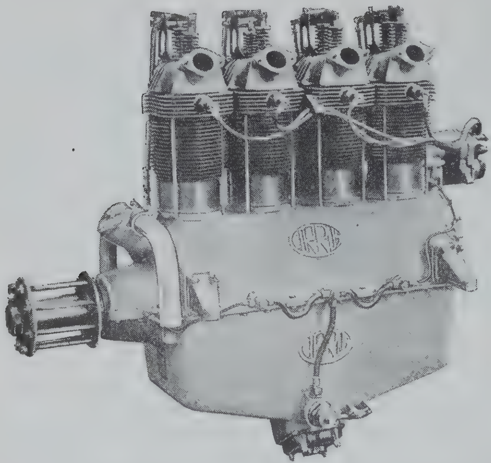

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CIRRUS-MOTH

LONDON-INDIA Pioneer Light Aeroplane flight on 2 Cirrus-Moth machines. Capt. T. N. Stack, A.F.C., and Mr. B. M. S. Leete, A.F.C.

LONDON-CAPE TOWN-LONDON. Lt. R. R. Bentley, M.C., A.F.C., flew from London to Cape Town and back and for this flight was awarded the

BRITANNIA TROPHY, 1927. The machine was a Cirrus-Moth.

KING'S CUP AIR RACE, 1926, won by Capt. H. S. Broad, A.F.C., on a Cirrus-Moth.

AUSTRALIAN AIR DERBY, 1926, won on a Cirrus-Moth by Sir Alan J. Cobham, K.B.E., A.F.C.

ROUND SOUTH AFRICA. Major A. Miller, D.S.O., flew round South Africa in a Cirrus-Moth, covering 2,400 miles in 28 hours.

LONDON-INDIA. Mr. Dennis Rooke flew from London to India on a Cirrus-Moth.

KING'S CUP AIR RACE, 1927, won by Capt. W. L. Hope on a Cirrus-Moth.

LONDON-CAPE TOWN. Lady Bailey flying a Cirrus-Moth reached Capetown from England and was the first lady pilot to accomplish this flight.

GOTHENBURG INTERNATIONAL MEETING, 1928. Cirrus-Moth machines won 7 first places.

SIDDELEY TROPHY, 1928, won by Miss W. E. Spooner, flying a Cirrus-Moth machine.

DUTCH INTERNATIONAL MEETING, 1928. A Cirrus-Moth was first in the final classification.

MIDLAND OPEN CHALLENGE CUP, 1928, won by Capt. Stack, A.F.C., with a Cirrus-Moth.

BUCKS HERALD CHALLENGE CUP, 1928, won by Capt. Stack, A.F.C., with a Cirrus-Moth, etc., etc.

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"Airdisco, London."

Lady S. Heath.

a message was dropped to an A.A. box some fifteen or twenty miles before the town was reached asking that a certain garage in the town should send a car out to the local aerodrome.

The efficiency of the A.A. organisation was shown by the fact that by the time the machine had reached the aerodrome and landed and taxied up to the parking-place a car had arrived from the town and the passenger was able to go straight off without waiting.

NEAR-BY EXPANSION.

Thus all may see that the A.A. has begun very well on its self-allotted task of cheering up Civil Aviation in Great Britain. There is a great deal more for the Association to do along the lines on which it has begun, for, as already suggested, every new owner of an aeroplane will want to try out his wings by making little towns in England, Scotland and Wales, and possibly even as far as the more civilised part of Ireland,—where distinguished visitors can travel without armoured cars and an armed escort. After that the fledgling aviator will want to fly about the Continent.

One of our most recent owner-pilots remarked the other day that for one private owner to-day there will be five by this time next year. He based his calculation on the fact that five of his immediate circle of friends have either ordered light aeroplanes or have the firm intention of ordering them as soon as the money comes to them in the ordinary way of their incomes.

Others will beg, borrow or steal the money, so his estimate does not strike one as exaggerated. Every present private owner, or owner-pilot may not have five friends who are happily able to spend lightly somewhere between £650 and £750 on a private aeroplane. But there are hundreds of people who can just raise the price and will, in their keenness, deny themselves any or all of the luxuries of life if only they may fly a machine which is their very own. Also there are some people who have the happy knack of being able to borrow machines or to induce other people to buy machines for them to act as pilots. This is all just as things used to be in the early motoring days when cars were expensive and when for every actual owner-driver of a car there were a dozen keen young men whose motor property consisted solely of a leather coat and a pair of goggles. These young men were really more to be considered by motor-car manufacturers as a field for advertising than were the actual buyers of cars themselves. They knew all about cars, and their rich friends or relations generally bought cars on their advice.

A very similar class is growing in aviation. And it will grow more quickly than it did in motoring because it will be continually fed by Short Service officers leaving the R.A.F. who will certainly try and induce their well-to-do relatives and friends to buy machines in which the said retired officers may take them touring.

Thus we may get some idea of the enormous field for which the Automobile Association is likely to be called upon to work next year and hereafter.

CONTINENTAL TOURING.

In Continental touring as in aviation at home, the A.A. has begun well. Practically everybody who has gone a-flying on the Continent lately has applied to the A.A. for the triptyques, or carnets, to give them their alternative title, w
act as passports for the aeroplanes themselves in fo
countries. The A.A. has had more experience than any
body in this country in issuing similar triptyques for
and apparently it has gone about doing the same busi
for aeroplanes in the same efficient way.

A recent appreciative user of the A.A. was Mr. L
Irvin, of parachute fame. He wanted to fly his Mot
Warsaw at short notice. Within twenty hours the
had supplied him with his triptyque, with all neces
papers, with special landing permits as required at ce
aerodromes, and with complete maps for his course.

Not only does the A.A. cater for real aeroplanes.
equally kind to other aircraft. For example it provide
the necessary documentation for the Autogiro when the
Don Juan de la Cierva flew it to France lately.

MAP SERVICE.

A part of the A.A.'s work which is particularly worth
note is the supplying to Continental air tourists of
which certainly could not be got anywhere else in
country or in any other,—at any rate arranged in the
thoroughly effective way. The making of an air map
job which can only be done by a practical aviator who k
what is wanted and what can be neglected and these
maps are excellent examples of just what is wanted.

Basically they are the ordinary maps of the country
which the tourist desires to fly. These maps are cut up
arranged in strips to fit the standard map-case and the c
is marked out on them. Along the edges of the maps
tances are marked so that by timing himself between
marks on the margins, the pilot can keep an exact c
on his speed over the ground and so can get some indic
as to whether the wind-speed has changed since he start

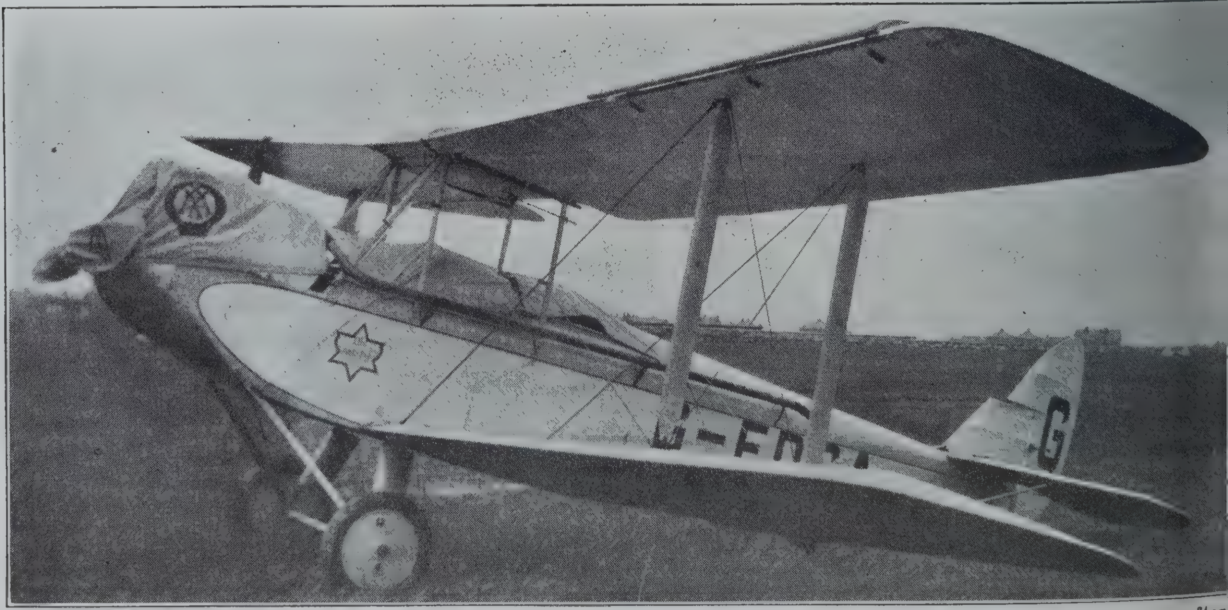
Intermediate aerodromes near the course are spe
marked by the A.A. cartographists. And besides eac
these aerodromes there is an indication as to the kin
accommodation and service available there.

FOREIGN AERODROMES.

Incidentally, this subject of foreign aerodromes sug
a matter in which the A.A. has a wide field for the u
its great influence on the Continent. The A.A. works i
most friendly way with most of the motor touring orga
tions and clubs on the Continent and one hopes that re
of THE AEROPLANE on the Continent who do one the h
of reading these notes will co-operate with the Autom
Association when the opportunity offers in improving
service on Continental aerodromes.

This, in fact, is one of the worst draw-backs to Contin
touring. A private owner who has lately returned fro
Continent remarks that while the brightest brains in
country are wearing themselves to a frazzle trying t
a few extra millimetres an hour out of their aeropl
and while thousands of magnificent mechanics are pr
ing these aeroplanes, a high percentage of the work of
brains and hands is wasted because if a tourist once a
at any Continental aerodrome he can never get away
two hours.

By the time he has found the right officials and
presented his papers, and has found the people in char
the petrol and oil, and has made sure that he has go



FIRST A-AID.—The slotted Cirrus-Moth G-EDCA, allocated to the use of the Director of Civil Aviation, after being tucked in for the night by the A.A. Aerodrome Service.

airey "III F." General Purpose Type.

The Fairey Aviation Company Ltd.,
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A I R E Y

right fuel for his particular engine, and has managed to find somebody to help him put it into the machine, and has then discovered somebody who will give him a bill and a receipt, and has generally managed to get his machine ready, to start again, he is lucky if there is any change left out of two hours.

He suggests that our brilliant designers will do better to think out ways of putting tanks into their machines which will hold six or nine hours' fuel so as to avoid stops rather than bother about refinements of detail design.

TOURING SPEED.

In this matter he is a trifle contradictory, because he lays down as an axiom that any machine for long-distance touring ought to have a top speed of over 120 m.p.h. and a cruising speed of over 100 m.p.h. This quite agrees with the arguments so often set forth in this paper.

One is always liable to butt into a thirty mile an hour wind. And one may occasionally have to fight a forty mile or fifty mile an hour wind. And unless a machine has a speed over the ground of at least 80 m.p.h. one may as well go by train.

Any long-distance tourist will bear witness to the fact that wherever he wants to go the wind always changes into a head wind just when he is ready to start. In fact, one private owner calls his machine *The Weathercock* because it always faces the wind. But that, of course, is just the natural cussedness of things.

The real point is that the A.A. can, with its vast Continental connections, do quite a great deal to bring to the proper Authorities the need for quicker service on Continental aerodromes. And by doing so it will make itself of still greater value to British Aviation.

A GOOD TRIAL RUN.

As has been said, the activities of the Automobile Association up to the present have been purely tentative. No separate Air Department has been organised, and all this valuable work which has already been done has been run in along with the ordinary activities of the Association using the regular personnel,—except for the fact that the map work has been done and the general lines of the operations have been indicated by a little group of enthusiastic private owners who are members of the A.A. as owners of cars.

What has been done has been so useful and has opened up such a view of the future possible usefulness of the A.A. in aviation that one hopes that when the subject of organising a regular Air Department comes to be discussed by the High Authorities of the A.A. it will be approved forthwith. Should it be so we can depend on Major Stenson Cool setting to work with his usual energy to make the A.A. national benefit to British Aviation as it has already been British Motoring.—C. G. G.

WARNINGS OF THE WEATHER.—The A.A. Map which advises visiting pilots how to go home.

THE FLIGHT TO THE DUTCH EAST INDIES.

The third of the Fokker FVII 3M monoplanes for the Dutch East Indies service suffered an accident at Cawnpore on October 2.

This machine, according to reports, was well ahead of her scheduled time-table, and the pilot was apparently moved to attempt to gain a whole day by putting in several hundred miles extra on the day on which he came to grief.

He was overtaken by darkness, decided to alight on the Cawnpore racecourse and struck an obstruction in so doing. The damage to the machine is not very serious, but it cannot be repaired until the arrival of spares, which are being sent out by the fifth machine, which is to attempt a return trip to Batavia.

A PHILADELPHIAN AERO SHOW.

Philadelphia will hold its first Aircraft Show from November 3 to November 10 in the 108th Field Artillery Armory, Broad Street, under the auspices of the Aero Club of Pennsylvania. The Show has the backing of the leading aeronautical people in the district.

The committee, consisting of Charles T. Ludington of the Philadelphia Flying Service, J. W. Smith of Philadelphia Air Transport, C. W. Larner of the Keystone Flying Corporation, Virgil Kauffman of the Aero Service Corporation, F. A. Riedel of the Crescent Air Service, Edgar N. Gott of the Keystone Aircraft Corporation, Major Sydney Owens of the 28th Division Army Air Corps, Ralph D. Weyerbacher, Commanding the Philadelphia Naval Aircraft Factory, and W. R. Huntsman of the B.B.T. Corporation of America.

One gathers that the Aircraft Industry of the United States is supporting the Show enthusiastically.

THE AERODROME DESIGN COMPETITION.

The Royal Institute of British Architects announce that in the preliminary stage of the competition for the best design for a civil aerodrome the jury have selected ten competitors to take part in the final competition.

The selected ten are :—Mr. Laurence Williams, Mr. D. H. McMorran, Mr. L. C. S. Farmer, Mr. C. A. Minoprio, Mr. F. S. Fry, Mr. N. B. Hillier, Mr. M. Hartland, Miss Ruth Ellis, Mr. W. R. B. Bertram, and Mr. F. W. Rowbotham.

The final competition is for prizes which have been given by the directors of the Gloster Aircraft Co. Ltd., and of H. H. Martyn and Co. Ltd., for the best design of a t minal aerodrome for London suitable for the needs of t air traffic of fifteen years hence.

The jury who will judge the competing designs is co posed of Sir Sefton Brancker, Mr. C. Cowles-Voysey, Mr. Vincent Harris, Sir Edwin Lutyens, Major R. Mayo, M T. S. Tait, Mr. Maurice E. Webb, and Mr. G. E. Woo Humphery.

THE LOSS OF THE ITALIA.

According to the Rome correspondent of *The Times* :

A Commission of five has been appointed to inquire into the circu stances of the loss of the airship *Italia* and of the death, or disappe ance, of certain members of the crew.

It is stated that the scope of the Commission includes an inquiry i the causes determining the loss of the airship, the circumstan inherent to that loss, and the conduct of the salvage operations.

Admiral Cagni, who is the President of the Commission, was member of the Polar Expedition led by the Duke of the Abru in 1899. The other members of the Commission are Lieutenant-Gen Armani (head of the General Staff of the Air Force), Lieutena General Molinelli (of the Medical Branch of the Navy), Lieutena General Vacchelli (Director of the Military Geographical Institute), Admiral Denti di Piragno.

MAJOR VON TSCHUDI.

Major von Tschudi, for many years the moving spirit the Aero Club of Germany, the president of the Luftrat, association of German Aerial Societies, which is the offic representative in Germany of the F.A.I., died in Berlin the evening of Oct. 7.

Major von Tschudi, who was born in 1862, entered Prussian Army in 1881, and from 1902 to 1906 was in co mand of the first military wireless telegraph department.

He organised the International Aero Show at Frankfort 1909, was superintendent of the Johannisthal Aerodro from 1910 to 1914, and during the war held important co mands in the German military Air Service.

Since the war he has played a very important part in development of German aviation, and was actively concer with the organisation of the Berlin Aero Show, which b tragic coincidence opened on the day of his death.

His loss will be mourned not only in Germany but by those concerned with aviation who have had occasion meet him.

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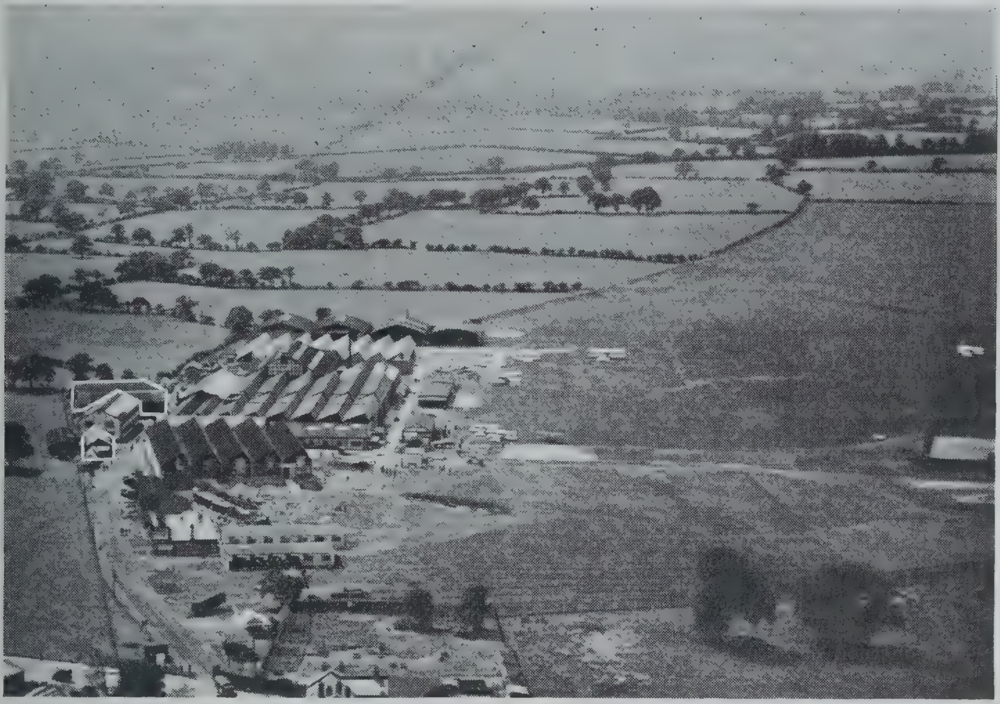

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Home of the
MOTH

1000 LANDINGS a DAY

IT is computed that on a fine summer's day Stag Lane Aerodrome sees one thousand landings. The seven instructors of The de Havilland School of Flying, which operates 9 Moths in addition to 5 advanced training machines, have frequently given a total of 35 hours' dual instruction during the day, working from early morning till dusk. Much of this time, as well as that of the solo flying on the remaining machines, is necessarily devoted to practice in landings. Numerous private owners, in addition to the 300 members of the London Aeroplane Club, using Moths exclusively, display ceaseless activity from Stag Lane Aerodrome, and it is here, the home of the Moth, that every Gipsy Moth is tested before delivery.

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FRENCH AIR DEVELOPMENT.

According to the Paris correspondent of *The Times* the Decree defining the powers of the new Air Ministry, which had been approved by the Cabinet on Oct. 2, was published in the *Official Gazette* on Oct. 3. By its terms some 36 Departments connected with aviation, hitherto scattered among at least four Ministries, now come under the control of the Air Minister.

As the result of his conversations with the Minister for War and the Minister of Marine, it has been decided that all their Air formations, with slight exceptions, shall pass to the control of the Air Ministry. The exceptions are that the *personnel* of the Air Service afloat will continue to belong to the Navy and will be under the direct orders of the Ministry of Marine, while certain Air regiments, groups, and organisations will be placed as complete formations at the disposal of the Minister for War. In practice, therefore, it is not thought that the efficiency of the fighting services will suffer in any way.

The estimates for the various air services, which are scattered through the Budgets of the four Ministries, are in process of being reassembled for the purpose of drawing up the estimates for the new Air Ministry.

So far as has been ascertained, the amounts hitherto allotted are as follows :—Ministry of Commerce, 316,800,000 f.; Ministry of War, 812,600,000 f.; Ministry of Marine, 319,200,000 f.; and the Ministry of the Colonies 24,200,000 f., a total of 1,472,000,000 f. (£11,770,000).

Some further items now charged to these Ministries, such as pay and clothing, have yet to be regrouped, but when the Air Budget has been formally completed it is not expected that it will exceed the total of the amounts already allotted. It is probable, however, that there will be a considerable readjustment of the expenditure in favour of commercial aviation, while it is also intended to develop the experimental service, which at present absorbs only about half of 1 per cent. of the total estimated expenditure.

M. Laurent-Eynac, the Air Minister, has announced his intention of inaugurating an active policy with regard to new construction by the method of supplying the aircraft building firms with orders.

Parallel with this he intends to develop civil aviation. A programme is to be drawn up for linking Paris by air with all the chief capitals of Europe and for starting permanent services between France and North Africa.

A beginning is to be made with the improvement of the existing lines, especially with regard to postal facilities. Those marked out for immediate development are the line from Paris to Amsterdam and thence to Malmö, in Sweden, that *via* Berlin to Warsaw and Moscow, and that to Madrid with an extension to Lisbon.

New lines are to be organised from Paris to Geneva, Lyon, and Bordeaux. Negotiations have already been begun with Italy for joining up with the Eastern Mediterranean, and the route to South America, which is at present served partly by sea and partly by air, is to become wholly an air route.

Other and more distant plans include a connection *via* Syria with the British line to India, and a route to b agreed upon with Belgium *via* the Congo to Madagascar.

In carrying out the programme the Air Minister propose to introduce a system of long-term contracts with guarantee interest, so as to afford commercial security to the variou aerial navigation companies.

In discountenancing further spectacular long-distanc flights M. Laurent-Eynac states that in the past these ex periments served a useful purpose as tests of material, bu that this is no longer the case, as the pilots attemptin them are now more concerned to achieve a success than t make discoveries of technical value.

THE HELE-SHAW-BEACHAM VARIABLE PITCH AIRSCREW.

After extensive bench tests a variable pitch airscrew the type developed by Dr. Hele-Shaw and Mr. Beacham, an manufactured by the Gloster Aircraft Co. Ltd., has bee flown for some hours, by the Gloster Co.'s test pilot, M Saint, on a Gloster Grebe with a Bristol Jupiter VI engin

This type of airscrew, which was described in THE AER PLANE of April 18, 1928, is hydraulically operated and co trolled by a centrifugal governor. This governor is set the pilot to any desired rate of revolution for the engin and it then so varies the pitch of the airscrew blade th whatever the throttle position, or the altitude of the machin the prescribed engine speed is maintained.

Mr. Saint reports that this method of control is simple an entirely satisfactory and relieves the pilot not only of an extra attention to the variable pitch airscrew, but also attention to his engine controls which would be necessar in the ordinary way.

For instance, in one test the governor was set to mai tain maximum engine r.p.m. (1,850). From about 19,000 f the machine was dived to its terminal velocity and the di was continued to about 6,000 ft.

During this dive the throttle was left fully open. Th engine r.p.m. never rose more than 20 above the 1,850 set o the governor and it rose this amount only temporarily. Wit a normal airscrew the engine would have raced and wrecke itself unless the pilot had closed the throttle.

This property of the Gloster Hele-Shaw-Beacham airscre is of great importance for military purposes. It ensures tha a machine which dives because the pilot has bee temporarily overcome—from lack of oxygen at high altitud or the like—will not wreck itself in descent because th engine races.

It means also that in a fight, or other conditions callin for rapid manœuvres, the pilot may set his throttle and forge about it, secure that his engine cannot exceed a safe limi of speed.

No noticeable muscular effort is required to control the ai screw, the mechanical details of the controlling gear are simp and robust, and in the event of any failure of the hydrauli gear a strong spring returns the blade to normal pitch.

Under flying conditions the control gear showed no notic able time lag, and engine r.p.m. varied with movement o the control practically instantaneously.

Examination after the tests showed the whole mechanis to be in perfect condition and free from discoverable wear.

FRENCH MILITARY AVIATION.—Fighter aircraft belonging to the "34me Regiment d'Aviation" at Le Bourget during the recent French Air Manœuvres. The machines in the front row are Nieuport-Delage 29's (300 h.p. Hispano-Suiza engines) and in the back row Nieuport-Delage 62's (500 h.p. Hispano-Suiza engines). In the background may be seen a number of Breguet XIX two-seaters belonging to the same regiment.

W.J. MILES. 1927.

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THE ROYAL AIR FORCE.

The London Gazette.

October 2.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—The following Flt. Lts. are granted perm. comns. in their present rank (Oct. 1):—F. H. Woolliams, W. Wynter-Morgan, M.C. (Capt., Glos. Regt., T.A.).

Plt. Off. A. M. Butt (Sec. Lt., Devon Regt., T.A.) is promoted to the rank of Flg. Off. (Aug. 1); Plt. Off. on probation C. K. Turner is confirmed in rank and promoted to the rank of Flg. Off. (Aug. 31). The following Plt. Offs. on probation are confirmed in rank (Oct. 3):—M. H. Clare, A. G. Lester. Flg. Off. J. St. C. Arbuthnott takes rank and precedence as if his appointment as Flg. Off. bore date Sept. 12, 1927, immediately following Flg. Off. Arthur Harold Owen on the gradation list. Reduction takes effect from Sept. 2, 1928.

Wing Cdr. H. A. Williamson, C.M.G., A.F.C., is placed on the retired list at his own request and is permitted to retain the rank of Group Capt. (Sept. 30); Flg. Off. D. G. Fleming is placed on the retired list at his own request and is granted permisssion to retain the rank of Flt. Lt. (Oct. 1).

The following Flg. Offs. resign their perm. comns:—C. H. Ratcliffe (Sept. 26); F. W. L. C. Beaumont (Oct. 3). Plt. Off. A. R. Grenfell relinquishes his S.S. comn. on account of ill-health (Oct. 3). The S.S. comns. of the following Plt. Offs. on probation are terminated on cessation of duty (Oct. 3):—R. A. Bloice, D. S. Collins, W. Smith, H. V. Thomas.

STORES BRANCH.—Flt. Lt. A. Davidson, M.C., is promoted to the rank of Sq. Ldr. (July 11).

ACCOUNTANT BRANCH.—Plt. Off. (Observation) F. C. Rendle resigns his perm comn. (Sept. 14).

MEDICAL BRANCH.—Flt. Lt. R. J. K. Chattey is transferred to the Reserve, Class Dii (Sept. 28).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—The following are granted comns. on probation in the ranks stated with effect from Oct. 2:—CLASS A.—Flg. Off. F. T. Digby, Flg. Off. A. T. E. Eadon. CLASS B.B.—Plt. Off. G. B. K. James. H. Hollick-Kenyon is granted a comn. in Class C as Flg. Off. (Oct. 2); Plt. Off. on probation E. H. Armitage is confirmed in rank (Sept. 15). The following Flg. Offs. relinquish their comns. on completion of service:—J. W. Bowler (Sept. 23); C. G. Gass, M.C. (Sept. 30) Flg. Off. C. T. Travers resigns his comn. (July 24). The comns. of the following Plt. Offs. on probation are terminated on cessation of duty:—E. M. King (Sept. 14); J. W. T. Jones (Sept. 12). Flg. Off. I. N. C. Clarke, D.S.C., is removed from the Service (Sept. 3). Flg. Off. L. J. C. Harding relinquishes his comn. on account of ill-health and is permitted to retain his rank (Sept. 26).

Appointments.

Week ending Oct. 8.

GENERAL DUTIES BRANCH.—Wing Commanders R. J. F. Barton, O.B.E., to Air Ministry (Directorate of Operations and Intelligence), for Air Staff Duties, 15/9. J. T. Babington, D.S.O., to Station H.Q., Hinaidi, pending taking over command, 28/9. C. E. Maude, to H.Q., C.A., pending commencement of Senior Officers' Technical course at H.M. Dockyard, Portsmouth, 28/9.

Flight Lieutenants F. P. Adams, to No. 4 F.T.S., Egypt, 28/9. R. W. Hill, to H.Q., Middle East, 28/9. W. L. Payne, to No. 47 Sqdn., Middle East, 28/9. F. C. Farrington, M.C., to School of Army Co-operation, Old Sarum, 9/10. H. S. Sandiford, to No. 3 F.T.S., Grantham, 16/10. J. R. I. Scambler, A.F.C., to H.Q., India, 17/6. T. W. S. Brown, to E and W. School, Flowerdown, 2/10.

Flying Officers J. A. C. Florance, to No. 1 F.T.S., Netheravon, 12/9. T. J. E. Thornton, to No. 1 Stores Depot, Kidbrooke, 1/10. R. S. Barbour, to No. 24 Sqdn., Northolt, 2/10. Hon. Flt. Lt. H. T. Herring, to R.A.F. Base, Gosport, 3/10. C. A. Anderson, to No. 6 Sqdn., 'Iraq, 17/9. L. G. Martin, to No. 481 Flight, Mediterranean, 30/9. O. R. Pigott, to R.A.F. Depot, Egypt, 28/9. P. G. Chichester, to No. 4 F.T.S., Egypt, 28/9. G. M. Pitts-Tucker, to R.A.F. Depot, Uxbri 9/9. J. A. Tindall, to No. 4 F.T.S., Egypt, 28/9. D. S. King No. 208 Sqdn., Middle East, 28/9. A. K. K. Calwell, to No. 208 Sc Middle East, 28/9.

Pilot Officers A. L. T. Naish, to No. 100 Sqdn., Bicester, 19/9. M Bircham, to No. 11 Sqdn., Netheravon, 24/9.

MEDICAL BRANCH.—Flight Lieutenants B. W. Cross, to No. 31 Sc India, 2/9. P. H. Perkins, to Station H.Q., Hinaidi, 4/9.

STORES BRANCH.—Squadron Leaders A. J. M. Ross, M.B.E., to No Group, H.Q., Lee-on-Solent, 24/9. T. E. Drowley, to Air Min (Directorate of Equipment), 24/9.

Flight Lieutenants H. E. Tansley, M.C., to Supply and Stores D Aden, 12/9. E. G. Keeping, to R.A.F. Base, Malta, 29/9. A. Allan, to Supply and Stores Depot, Aden, 29/9.

Flying Officers J. F. Young, M.M., to Supply and Stores D Aden, 29/9. N. Dainty, to Supply Services, 'Iraq, 28/9. R. T. to Supply Services, 'Iraq, 28/9. A. E. Connolly, to R.A.F. D Egypt, 28/9.

ACCOUNTANT BRANCH.—Flying Officers C. E. Aston, to Comn Accounts Office, Baghdad, 28/9. S. W. Hill, to No. 4 F.T.S., E 28/9. J. P. Cave, to No. 2 A.C.C., Middle East, 28/9.

CHAPLAINS BRANCH.—The Rev. C. A. B. Allen, M.A., to H.Q., Command, 28/9. The Rev. H. Thomas, B.A., to H.Q., Transjordan Palestine, 21/9.

The High Speed Flight.

Flt. Lt. D. D'A. A. Greig, D.F.C., A.F.C., made ano trial flight in the Supermarine S.5 (Napier Lion engine which he is practising for the attempt on the World's S Record, at Calshot, on Oct. 7.

The trial was delayed for about half an hour to allow wash of a passing liner to subside but took place at ab 08.30 hours. During this trial the Air Ministry offic tested the timing camera-gun.

The officers of the High Speed Flight wish to acknowle through the Press, the courtesy of the captain of the tanker *Ben Oliver* who stopped his vessel until Flt. Greig was in the air in order to avoid disturbing the wa

Flg. Off. R. L. R. Atcherley has been posted from Central Flying School to the High Speed Flight.

The Schneider Trophy Contest.

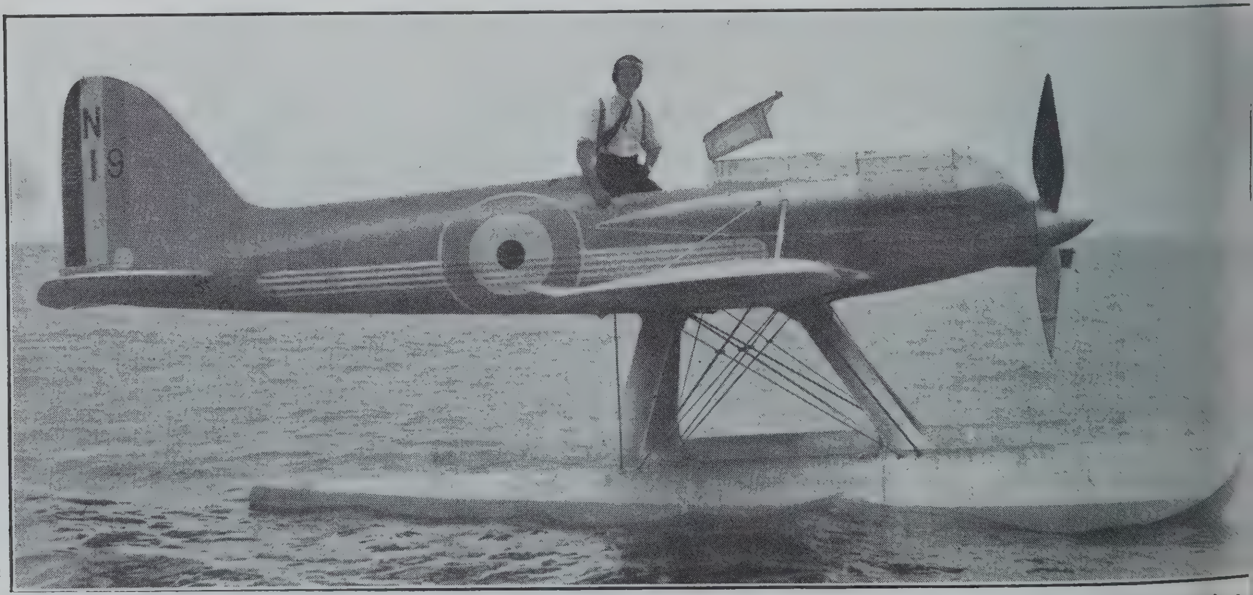
The contest for the Schneider Trophy will be held British waters in 1929 between Aug. 24 and Oct. 24. competent authority appointed by the Royal Aero Club inspected all the possible courses for the contest and come to the conclusion that no place has such comp facilities as the Solent. In consequence a course over stretch of water will be marked out.

In this vicinity there is sheltered water and there are commodation and facilities for the handling of racing planes at Calshot, Cowes and Lee-on-Solent.

On the last occasion on which the Schneider Trophy test was held in this country, in 1923, the Headquarters at Cowes and the actual course had turning points at Co Selsea, and Southsea.

The Army Senior Officers' School.

The following officer of the R.A.F. has joined the A Senior Officers' School, Sheerness, for the 28th course the third of the three courses arranged for 1928:—Sq. I A. N. Gallehawk, A.F.C., R.A.F.



SPEED.—The Supermarine S.5 (Napier Lion engine) in which Flt. Lt. D. D'A. A. Greig, D.F.C., A.F.C., is making practice flights before attempting to lower the World's Speed Record on a similar machine. This is the machine in which Flt. Lt. S. N. Webster, A.F.C., won the Schneider Trophy last year.

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Promotion in the R.A.F.

Air Vice-Marshal Sir Ivo Vesey, K.B.E., C.B., C.M.G., D.S.O., in the Report on the Royal Air Force Examinations, "B" and "C" held in February and March, 1928 (Air Publication 1350, 1s. net.), states that although no candidates obtained 80 per cent. of the full marks in Promotion Examination "C," from Flt. Lt. to Sq. Ldr., the results show a general improvement on the examination of September, 1927, in the standard of knowledge displayed, and that there was again no outstanding variation in marks between most of the candidates.

In promotion Examination "B," from Flg. Off. to Flt. Lt., the results were disappointing, and although 6 per cent. of the candidates got over 80 per cent of the full marks the failures amounted to 25 per cent. Though lack of knowledge and of preparation, as brought out in the last report, was again partially responsible for some of these failures, the results seemed to show that the outstanding cause of the poor result was a lack of ability on the part of the candidates to do justice to themselves in the examination and show to the examiners the knowledge which they actually possessed.

Later in the Report Air Vice-Marshal Vesey states that disjointed answers and illegible handwriting again led to a loss of marks unnecessarily.

The Report gives the examination papers in full with remarks on the various questions and on the answers given to them by the candidates. It is an essential guide for all those who have yet to face promotion examinations.

The Inevitable R.A.F.

The Times correspondent in Alexandria in a message dated Oct. 5 states :—

The six-days' search for three members of the missing desert shooting party has at last been successful. At 11 o'clock this morning a Vickers Victoria aeroplane found them in a wady near Maghagha, and took them to the headquarters of 216 Squadron, R.A.F., at Heliopolis, where they received first aid. They were then carried to the Italian hospital at Abbasia, where, according to the latest report, they are in a bad state owing to the prolonged sufferings from thirst, but are in no danger.

Considering all the circumstances the rescue is very creditable to the R.A.F.

A *Reuter* message from Cairo on Oct. 5 states :—

An R.A.F. aeroplane, while flying very low over the desert to the south-west of the Fayyum, observed one member of the party clad in a shirt. He was signalling with a handkerchief tied to a rifle. The aeroplane landed, and found that the man was in a pitiable condition. Both the other survivors were discovered in an adjacent cave naked.

The condition of the three survivors is at present such that they can give no coherent account of their misadventures. Their motor-car has so far not been discovered.

Liaison with the Public Schools.

Under the Air Ministry system of liaison between the R.A.F. and the public schools a party of 22 senior boys of Harrow School visited the R.A.F. Station at Hendon on Oct. 5 and were given passenger flights in the machines of the Home Communication Flight, R.A.F.

The Liaison scheme provides that selected boys who are considering entering the R.A.F. may, with the written permission of their parents and subject to the exigencies of the Service, be taken for flights as passengers.

The machines used were one Lynx Avro, two Bristol Fighters and two Genet Moths, and the Cirrus Moth belonging to the Directorate of Civil Aviation. Each passenger had about 10 minutes in the air and, with one exception, enjoy it. The Liaison Officer for Harrow is Sq. Ldr. P. Huskins

The Royal United Service Institution.

The programme of Lectures for 1928-29 at the Royal Unit Service Institution is as follows :—

Oct. 21.—The Part of the Retired Officer in the Future of Empire, Admiral Sir R. G. O. Tupper, G.B.E., K.C.B., C.V.O.

Nov. 14.—The Influence of Ground on Modern Military Operatio Major-Gen. C. P. Deedes, C.B., C.M.G., D.S.O.

Nov. 28.—The Work of the British Navy in the Far East, Ca L. D. S. MacKinnon, R.N.

Dec. 5.—The Employment and Development of Flying-boats, W Cdr. R. B. Maycock, O.B.E., R.A.F.

Dec. 12.—Japan's Position in the Far East, Sadao Saburi, Cha d'Affaires, Japanese Embassy.

Jan. 9.—The Board of Trade and the Fighting Services, E. J. Fo Esq., C.B.

Jan. 16.—Auxiliary Air Force and University Air Squadrons, W Cdr. A. G. R. Garrod, M.C., D.F.C., R.A.F.

Jan. 23.—The Training of the Regimental Officer, Brig. B. Fisher, C.M.G., D.S.O., A.D.C., Commandant, Senior Officers' Sch Sheerness.

Jan. 30.—The Mercantile Marine in a Future War, Sir Norman Les Bart., K.B.E.

Feb. 13.—National Finance in War, J. M. Keynes, Esq., C.B., M

Feb. 20.—The Present Position of Airships, Group Capt. P. F. Fellowes, D.S.O., A.D.C., R.A.F.

Feb. 27.—The Problems of Supplying Mechanised Forces in the Fi Col. D. C. Cameron, O.B.E., R.A.S.C.

Mar. 6.—The Fleet of the Future, Capt. J. V. Creagh, D.S.O., R.N

The lectures begin in each case at 15.00 hours.

The Royal Australian Air Force.

The Daily Telegraph correspondent in Sydney, N.S. in a message dated Oct. 7, states :—

Air Marshal Sir John Salmond, who investigated the organisa and policy of the Australian Air Force, at the request of the Comm wealth Government, drastically criticises the present equipment training.

He says that owing to the obsolete type of service machines in throughout the Air Force, the entire absence of reserve equipm and the low standard of training for the operational units, he siders the Royal Australian Air Force to be totally unfit to undert a war operation in co-operation with the Navy or the Army, after the permissible period of training had elapsed.

He recognises that the defects are largely due to the imme difficulties inseparable from the task of building an Air Force the initial stages without a properly established organisation or b

Sir John Salmond recommends that a proportion of the operati units should be maintained on a permanent basis, and that the cit squadrons should be confined to one service type of aircraft. courses should be extended. Nine officers should be sent to Engl for long training courses, to qualify as specialists, and the stores of should study stores establishments.

Within nine years additions should make the strength of the f as follows: One Army co-operation squadron, two bombing re naissance squadrons, two coast reconnaissance boat flights, a recr training section, wing headquarters, cadets' training wing at Military College at Duntroon, and a Citizen Air Force squadron.

He estimates the capital expenditure needed for the scheme £1,235,000; for equipment, £748,000; for works services, £8,000; and specialist training for officers and annual maintenance, £652,000.

A later message states that Sir John Salmond's Report been adopted and that the necessary expenditure has b sanctioned by the Commonwealth Government.

The Osborne Convalescent Home.

An Air Ministry Order draws the attention of all offic to the revised advertisement concerning the King Edw VII Convalescent Home for Officers, Osborne, which appe in the October Air Force List.

All officers of the R.A.F. on the active list who are

LIAISON.—The party of Harrow boys at Hendon, where they were taken for ten minute flights by the Home Communication Flight, R.A.F., on Oct. 5, under the official scheme of liaison between the R.A.F. and the Public Schools.—(*"Aeroplane" photograph.*)

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On Thursday, October 4th, Lady Heath attained a height of nearly 23,000 feet on a D.H. MOTH Light Aeroplane thus breaking (subject to confirmation) the World's single-seater light aeroplane height record. The Cirrus engine of Lady Heath's plane was lubricated with Wakefield CASTROL.

The two-seater light aeroplane height record of nearly 20,000 feet by Capt. G. de Havilland on a GIPSY-MOTH, was also made on CASTROL. So continues the unbroken run of CASTROL achievement! Follow the example of the Experts and safeguard your engine by using—

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valescent after illness or certified by the medical authorities as requiring a change of air on grounds of health, are entitled to apply to go to Osborne. Subject to certain conditions, retired and demobilised officers are also eligible for this privilege, and the Authorities have now decided to extend this benefit to officers of the R.A.F.O. (including the Special Reserve) and Auxiliary Air Force who are suffering from a disease or injury attributable to service.

A revised booklet on the King Edward VII Convalescent Home has recently been issued and copies will shortly be distributed to units for retention in the officers' mess and station sick quarters.

H.M.S "Pegasus."

The Times of Oct. 6 states :—

Instructions have been given that H.M.S. *Pegasus* is to be placed on the sale list. The vessel will be prepared for sale at Devonport, when men are available for the work and the details of fittings to be removed have been decided, at the same time being paid off into dockyard control. The *Pegasus* was originally the Great Eastern Railway steamer *Stockholm*, launched by John Brown and Co. in June, 1917, and purchased while under construction for duty as a seaplane-carrier. Her last active service was on special duty at Singapore, and she has been in reserve at Devonport since May, 1925.

The R.A.F. Memorial Fund.

The Executive Committee of the R.A.F. Memorial Fund has dealt with 353 cases in which grants have been made between July 1 and Sept. 30, 1928. The amount of the grants during that period made to past and present members of the R.A.F. was £2,929 3s. 10d.

Generally speaking, grants from the Fund are made for maintenance during sickness, purchase of tools, fees at convalescent homes, payment of arrears of rent, insurance, etc., and grants or loans to establish small businesses.

An Acknowledgment.

A photograph which appeared on page 459 of the Special R.A.F. issue of THE AEROPLANE of April 4, 1928, showing His Majesty the King inspecting officers of the II Brigade at St. Omer in 1918, is the Crown copyright of the Imperial War Museum and due acknowledgments to the Imperial War Museum are made herewith.

R.A.F. SPORTS AND PASTIMES.

The R.A.F. Hockey Association.

The R.A.F. Hockey Association fixtures for the season 1928-29 are as follows :—

Representation Matches.—Jan. 12, 1929, v. Southgate at Southgate. Jan. 16, v. Bedford County at Stanmore. Jan. 23, v. Royal Engineers at Chatham. Jan. 30, v. Oxford University at Uxbridge.

Feb. 9, v. Tulse Hill at Kent House. Feb. 13, v. The Army at Merton Abbey. Feb. 20, v. Middlesex at Stanmore. Feb. 23, v. Civil Service at Chiswick. Feb. 27, v. Royal Navy at Merton Abbey.

Unit Tournaments.—

Open Tournament, semi-final Mar. 13, final Mar. 27.

Junior Tournament, semi-final Mar. 6, final Mar 20.

Physical Fitness and Immunity from Accident.

The Central Medical Board of the Air Ministry, which is responsible for the medical examination not only of personnel of the R.A.F. but also of pilots employed in Civil Air Transport, has, as is well known, always demanded very high standards of physical fitness in all pilots.

In the report on the Health of the Royal Air Force for the year 1927 (reviewed in THE AEROPLANE for Oct. 3), there is recorded the result of an investigation into the connection, if any, between flying accidents and the physical condition of the pilots concerned in those accidents.

Using the arbitrary scale adopted by the Central Medical Board, the perfectly fit man would be shown by a figure of 50. Marks are deducted according to an established schedule for all observed defects, and thus anyone obtaining over 40 marks is considered definitely fit for flying duties. All those receiving less than 35 are definitely unfit. Eyesight is treated in a somewhat similar manner, 50 marks corresponding to no visual defects (which is that abnormal state which is officially called normal sight).

This investigation found that the average physical fitness and visual efficiency of all R.A.F. officers who had had accidents while flying during 1924 to 1926, inclusive, could be expressed as 44.75 (physical) and 48.86 (visual). The average figures for all officers granted Permanent Commissions during 1924-25 were 44.84 and 49.33 or very slightly better than the figures for the accident cases.

When the accident cases were further analysed, and the figures for those accidents definitely due to error of judgment on the part of the pilot were separated, the investigators found that the eyesight of pilots who had made these errors was a little better than that of those whose accidents were not so definitely their own fault.

When the corresponding figures for officers with short se vice commissions who had suffered no accidents were com pared with those who had had accidents they found that th latter class had on an average slightly better figures both f physical fitness and eyesight.

The actual differences in the figures are so slight that the justify the official conclusion that lack of general physica efficiency of R.A.F. pilots cannot be considered a contribu tory cause of accidents.

So far as these differences go they suggest that, within th limits of physical condition accepted by the R.A.F. medica authorities, liability to accidents rather increases with in creased physical fitness. This is not so irrational as ma seem. The more perfectly fit a man is the more ready h may be to take risks light-heartedly.

But the figures do suggest that the standards at presen adopted in the medical examination of British pilots are eithe unnecessarily high or else do not correctly take into accoun all those factors of physical condition which affect the in dividual's liability to make mistakes in flying.—W. H. S.

Prisoners of the Turks.

[*Guests of the Unspeakable : The Odyssey of an Australia Airman—being a record of captivity and escape in Turke* By T. W. White. 320 pages, 8½ in. × 5½ in., 26 illus trations and a map. John Hamilton. From THE AERO PLANE Book Dept., Cannon House, Pilgrim Street, E.C.4 12s. 6d. net.]

In the Spring of 1915 in response to a request by th Government of India for an Australian Air Unit for servic in Mesopotamia, the Commonwealth Government sent fou officers and 60 men under the command of Capt. Henr Petre to Bombay. One of these officers was Capt. T. W White (now Lieut.-Col. White, D.F.C.), and this book is th story of his adventures with the R.F.C. in Mesopotamia his capture by the Turks and his escape after two years captivity.

Since the Armistice a large number of books by escape prisoners of war have been published and on the whole th standard has been high. Colonel White's book is no excep tion to this rule. He has made light of his own persona trials but his account of the sufferings of the other prisoner in that theatre of war gives a vivid idea of his own and hi companions' gallant defiance of the worst possible fortune of war.

At Bombay the Australian Unit was equipped with Mauric Farman Longhorns which were later supplemented by tw 80 h.p. Caudrons, and took part in the action known a "Townshend's Regatta" and the capture of Kut-el-Amara In November, 1915, the Author, with Capt. Yeats-Brown a observer, volunteered for the job of cutting six lines of tele graph wire running north and west from the City of Bagh dad. They had to fly over sixty miles to the point wher the wires were to be destroyed and their machine could onl do three hours at 50 m.p.h. without refuelling.

The Sappers told them that the telegraph wires were to tough to cut so they prepared necklaces of guncotton for th posts and started off. They crossed the Turkish lines and Bagh dad City and found their objective. Unfortunately in land ing they broke two outer struts, a longeron, and some rib of their machine against one of the telegraph posts.

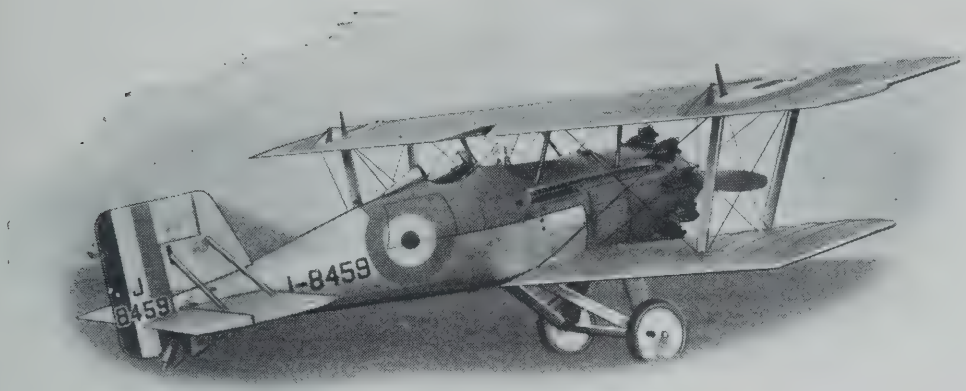
White made temporary repairs to the machine while Yeats Brown blew up telegraph posts, but just as they started u the engine the second charge of guncotton went off and th telegraph wires whipped back and entangled the machine By this time they were surrounded by hostile Arabs and few Turks and were soon knocked out and made prisoners.

After a few days in Baghdad they were moved, by araba (a four-wheeled springless cart) to Mosul. From there the travelled during the two years of their captivity to Nisibin Djera Blous, Aleppo, Adana, Afion Kara Hissar, Kutaia Scutari, and Constantinople.

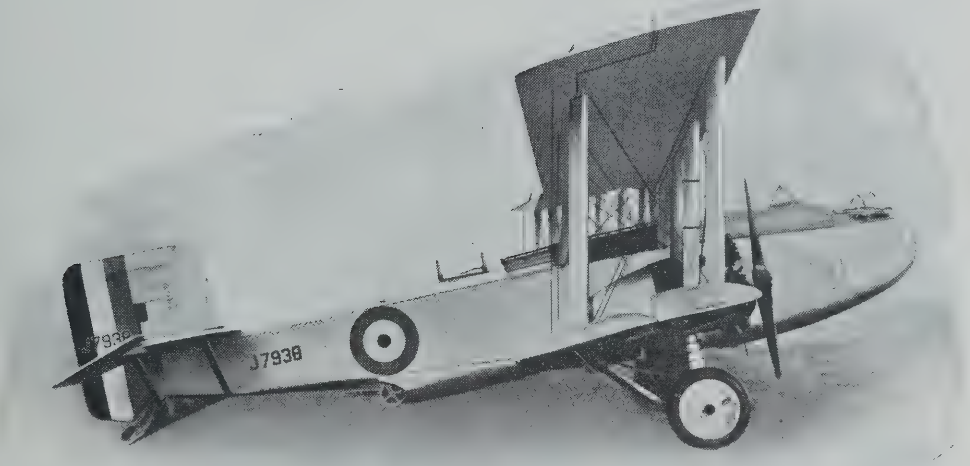
They spent many weeks at Afion Kara Hissar. There the were joined by the prisoners taken at the fall of Kut-el Amara. And it was there that Capt. White was taken t Constantinople with a view to exchange as an invalid.

In hospital at Constantinople he came across Hill of "Th Road to Endor" fame. Thence the Author and Capt. Ala Bott, who describes his adventures in "Eastern Nights an Flights," made their valiant dash for liberty. After amazin adventures they stowed away in a Russian tramp steame in which, after 14 hours at a stretch in the ballast tanks they reached Odessa. From Odessa they got to Varna an eventually to Salonika, less than two weeks before th Armistice.

Colonel White has exposed all the cruelty, greed and vin dictiveness of the Turk as shown to enemy prisoners-of-war And at the same time he has shown the indomitable pluc and endurance of British and Indian troops under circum stances of indescribable misery.—C. M. McA.



The Boulton & Paul "Partridge" single seater fighter of all-metal construction.



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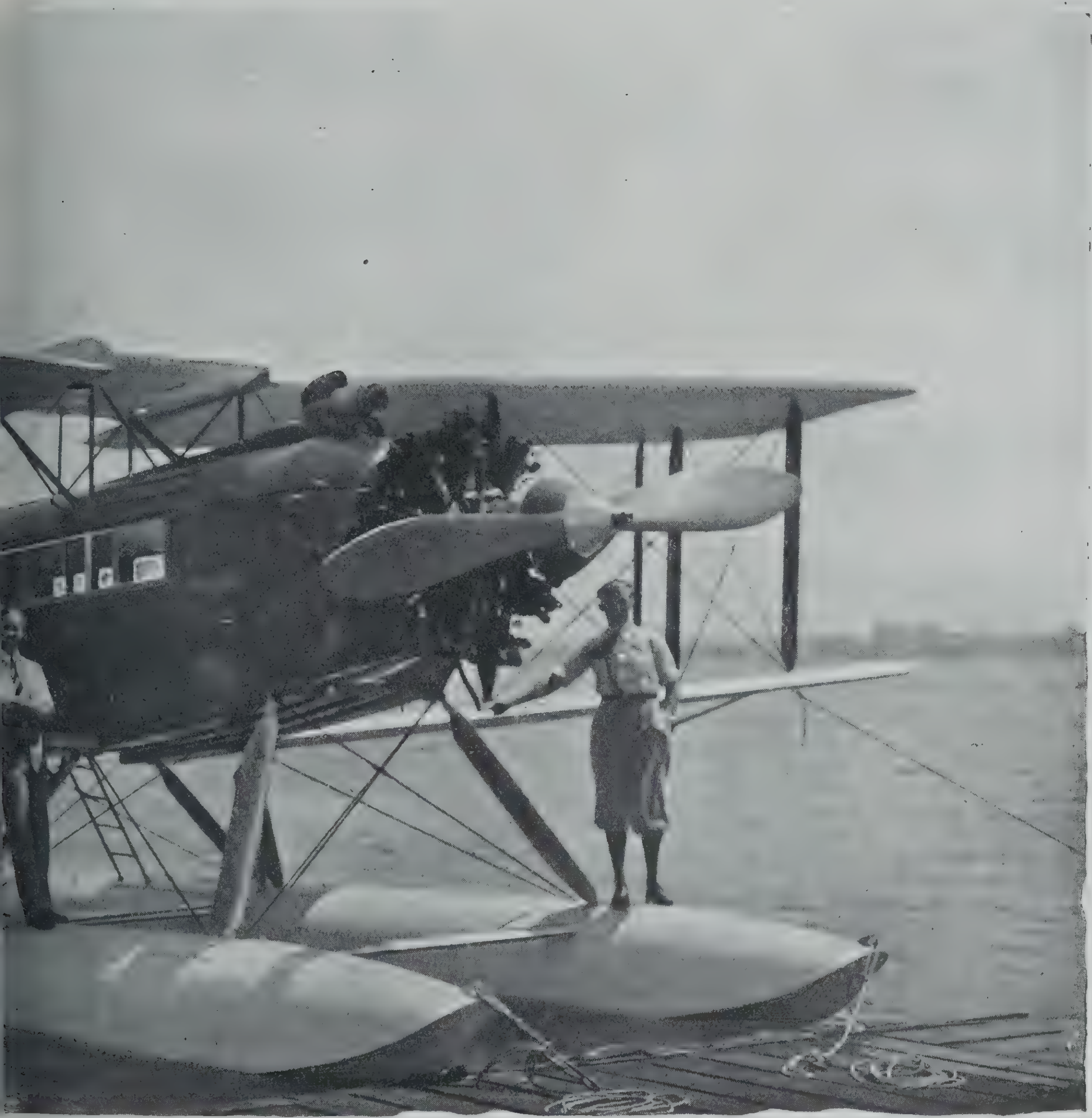

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THE BERLIN AERO SHOW.

The following notes, necessarily brief, give but a general outline of the exhibits at the Berlin Aero Show. A full report of the aeroplane, aero-engine and accessories exhibits will appear in the two forthcoming issues of THE AEROPLANE.

The International Aeronautical Exhibition (" Ila "), which opened in Berlin on Oct. 7, is undoubtedly an important event in the world of aviation, but, at first sight, at any rate, it does not seem to offer many striking novelties. If there are any they will probably be of that small but valuable kind that becomes revealed through close study.

The Ila provides an excellent opportunity, indeed, the first since the war, of obtaining a complete, concentrated impression of the notable progress made by Germany in the field of civil aviation. The display, however, is just a little misleading. The enormous, towering bulks and span of the Rohrbach, the Junkers G.31 and the Dornier Superwal, are inclined to distract the attention from a rather weak display of light machines. That is where the British section, despite certain shortcomings, scores.

Besides the three " giants " mentioned above, the Albatros L.73, known as the " flying sleeping car " and a number of other passenger aeroplanes and flying-boats which would stand out in other surroundings, such as the Dornier Wal and some of the Focke-Wulf machines, are shown. As far as one can gather the only machine not already known is a new product of the Bayerische Flugzeugwerke, the B.F.W. M.20, with accommodation for 10 passengers and two pilots. The interest of foreign visitors has already been attracted by the Focke-Wulf A.21, " Photo-Möwe," a remarkably well designed and equipped survey machine.

It is generally agreed, however, that the exhibits deserving of the most attention are to be found in the German Aero-Engine Section. The progress made in engine construction since the Germans began manufacturing foreign engines under licence gives evidence of a belated determination to make up the leeway of the Nine Rules period.

With their advance, to all accounts, hampered somewhat under the Gnôme-Rhône European licence for the Jupiter, Siemens have gone ahead on their own and produced two new air-cooled radial engines, Sh.21, 7-cylinder, and Sh.20, 9-cylinder, of which there is considerable talk. How far this venture has succeeded will be a matter for later discussion. The Bayerische Motoren-Werke, who have been manufacturing the Pratt and Whitney Hornet under licence, show their successful B.M.W.VI and a later B.M.W.VIII, which are also attracting notice. The Argus Company, after a long interval, has reappeared, in alliance with the Horch works, with new and interesting designs. The Junkers Company shows the L.5 engine which took the " Bremen " across the Atlantic, the L.55 which attracted attention at Paris, and the L.88.

Apart from the engines, there is much interesting material for study in the aerial survey section, which is particularly thorough, and in the exhibits of the Experimental Aircraft Institute at Adlershof, which illustrate weight tests and include a machine which revolves in the air for engine testing. Ground organisation, the German airway system, and similar themes are illustrated in Hall III with the thoroughness to be expected of the Lufthansa and other organisations.

The foreign exhibitors of 18 countries have not been able to compete with Germany in Hall II in mere size and impressiveness. The largest exhibit is a complete Farman F.180 passenger machine, and there is nothing else in t hall approaching it in size.

The whole French section, which shows signs of t Government support and organisation provided, is contain in a single undivided area. For historical interest it offe the Breguet XIX used by MM. Costes and Le Brix on th world flight.

The Italians show the Macchi racing seaplane which hol the World's seaplane speed record.

The Russian section is fairly extensive and includes A.N.T.3 passenger machine, and what is described as t first practicable motor sledge, with an English-built Jupit engine, which is rather like a hydroplane designed for sn and ice. A very small light aeroplane has an undercarria which at first looks like a single-leaf spring, but on clos inspection proves to be of wood.

Czechoslovakia has an excellent exhibit, showing h rapidly the Czechs are forging ahead. The Avia passeng machine is impressive, and the Walter engines are of go finish and well displayed.

One comes last to the British section, having endeavour to give a rough description of the company it is in. It occ pies one corner of the hall, but several stands are isolate owing to belated application for space. Something like year ago all details of the exhibition were published a circulated in England, and there have been frequent minders. The response was at first so poor that one e pected a disappointing result, but the section is better th seemed possible only a short time ago. Manufacture could hardly be expected, perhaps, to bring out any of o few large passenger machines unaided on a sort of crusa in which prestige was involved rather than profits, and the Government would not collaborate and military aircr were strictly excluded, the British exhibit is confined to lig aeroplanes and engines.

But British light aeroplanes, well presented as they a make an excellent impression after their opposite numb in the German section.

The German general public will no doubt judge to a gre extent by size and draw its own conclusions, but Germ aviation circles will certainly appreciate the section. T British exhibit will come in for detailed attention later; general impression should suffice at this early stage.

On the De Havilland stand a slotted Gipsy-Moth wi split undercarriage is excellently displayed, together wi floats and skis. The slot is going to attract a good d of attention in Berlin, where it has been known hithe chiefly by hearsay, and the Handley Page stand is given entirely to explaining it. A useful means of demonstrati is a small model aeroplane fitted with a slot which, wh electric power is switched on, comes into the position at whi the slot operates automatically.

Other exhibits are two Avro Avians, one with a Genet a the other with a Cirrus engine, and a Blackburn Bluebird. the engines, a Napier Lion Series XI is shown for the fi time, a Rolls-Royce F.XI, all four of the Armstrong Siddel engines, a Bristol Jupiter Series VIa, a Titan Series I, a an A.D.C. Nimbus and a Cirrus. Imperial Airways have t cabin of an Argosy open on one side to show the interior.

The historical exhibit of the Royal Aeronautical Soci makes a very good impression, and is well presented, espe ally the models, the property of the Government Exhibitio Branch, which illustrate the progress of British aviation fr 1908 to 1928. They are to scale, and hang, with a sky-bl background, behind a long strip of plate glass.

AN AIR SURVEY OF THE ANTARCTIC.

Sir Hubert Wilkins, accompanied by Lt. Eielson, and Mr. Crossan as first relief pilots, and two mechanics, sailed from New York on Sept. 23 on the first stage of their journey to Deception Island which is to be the base for an aerial survey of the Antarctic, for the purpose of selecting possible sites for meteorological stations.

Two Lockheed Vega monoplanes are to be taken to Deception Island and flown thence to a field base on the Antarctic Continent. From this base a dozen or so survey flights will probably be made.

Thereafter the expedition will fly to Ross Sea to join Commander Byrd and will co-operate with him.

A ZEPPELIN CRUISE.

At 07.00 hrs. on Oct. 2 the *Graf Zeppelin* left Friedrichshafen with 70 people on board on an extended cruise over Germany the North Sea and England, and returned to its shed at 17.30 hrs. on Oct. 3 after having covered between 1,500 and 1,800 miles.

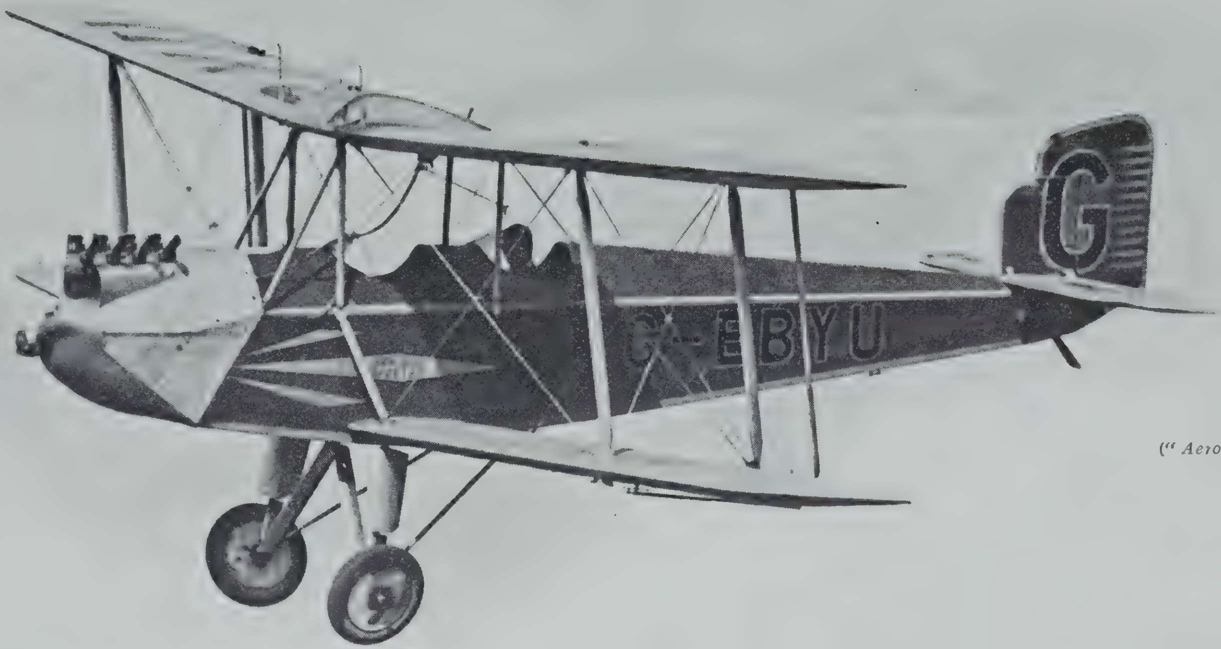
After leaving Friedrichshafen it proceeded by way of Ulm, Nuremberg, Bamberg and Frankfurt to Wiesbaden, where it crossed British occupied territory, and then turned north towards Holland. It passed over Rotterdam at 18.50 hrs. proceeding in a north-easterly direction.

At 21.05 hrs. it passed over the English coast at Lowest and at 21.15 it flew over Yarmouth. It then proceeded to sea and again reached German territory at 02.25 hrs. Oct. 3.

Half an hour later it passed over Bremen, at 04.45 h the town of Schleswig was reached and two hours later flew over Hamburg on its way to Berlin where it arrived 09.00 hrs. From Berlin it flew over Leipzig, Dresden, Ba reuth, Nuremberg and Ulm, back to Friedrichshafen.

The German Nationalist newspapers stated that Dr. Ecker had flown over Doorn and that the *Graf Zeppelin* had be watched by the ex-Kaiser, but this report which caused mu irritation in the Republican Press, has been denied by I Eckener.

The Inter-Allied Rhineland Commission has drawn the tention of the German Government to the fact that the airsh flew over occupied territory without the necessary autho sation but Dr. Eckener has explained that the ship was blo off its course by wind and weather and that the transgressi was unavoidable. Also Dr. Eckener has stated that he plied for permission to cross this territory and was told t permission would only be given for a specified flight on specified date. He was unable to specify a date, as obviou the start of the flight would depend upon the weather. Th being so the Inter-Allied objection seems a trifle ridiculous.



("Aeroplane" photograph.)

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THE AMERICAN NATIONAL AIR RACES.

The 1928 National Air Races were held at Mines Field, Los Angeles, California, from Sept. 8 to Sept. 16, 1928. The races were preceded by six cross-country air "Derbies." And held concurrently with them were an Aero Exhibition and five National Conventions.

THE AIR DERBIES.

The six air "Derbies" all concentrated on Los Angeles. Three were from New York across the United States, one from San Francisco, one from Oakland, Cal., and one from Windsor, Ontario.

The Class "A" New York—Los Angeles race—open to civil aircraft with engines up to 510 cub. in. displacement—is described hereafter by one of the contestants, so one will merely recount here the official result of the race. It was won by Earl Rowland, who flew a Cessna monoplane (Warner Scarab engine) and covered the course in 24 hrs. 31 secs actual flying time. He was followed by Robert Take and Theodore Taney in an American Moth monoplane (Warner Scarab engine), 25 hrs. 18 mins. 43 secs.; W. H. Emery in a Travel Air biplane (Warner Scarab engine), 25 hrs. 48 mins. 28 secs., and Theodore Kenyon in a Kreider-Reisner Challenger biplane (Warner Scarab engine), 26 hrs. 19 mins. 47 secs. In all twenty-one of the thirty-eight competitors completed the course.

The Class "B" New York—Los Angeles race was for machines with engines of from 510-800 cub. in. displacement and all competitors with one exception flew aircraft with Whirlwind engines. Last year's winner, C. W. Holman, flew into a mountain side in Pennsylvania owing to fog and crashed his machine. Errold Ball in a Lockheed Vega monoplane did the same thing and turned over. The latter got help, dug a hole in the sloping ground, turned his machine back onto its undercarriage, filled up with petrol and continued,—finishing the race close behind the leaders.

This race was won by John Livingston on a Waco 10 biplane (Wright Whirlwind) in 22 hrs. 56 mins. 59 secs. He was followed by E. E. Ballough on a Laird biplane (Wright Whirlwind). This latter pilot damaged his engine on the Tuscon—Yuma leg of the course but was able to get a new engine which he installed by working all night on it.

The Class "C" New York—Los Angeles race for aircraft with engines over 800 cub. in. displacement was won by Robert Cantwell on a Lockheed Vega monoplane (Pratt and Whitney Wasp) with C. B. D. Collyer on a Fairchild monoplane (Wasp engine) second, and E. J. Brooks on a Fokker Super-Universal (Wasp engine) third. These three were the only finishers.

There were two California "Derbies," one from San Francisco and the other from Oakland. The first, from San Francisco, for machines having engines up to 510 cub. in. displacement, was won by H. S. Myhres on a Simplex monoplane (100 h.p. Kinner engine) in 3 hrs. 10 mins. 20 secs., and the second, from Oakland, for machines with engines up to 800 cub. in. displacement, by H. C. Lippiatt, on a Travel Air biplane (Wright Whirlwind engine) in 2 hrs. 26 mins. 49 secs. There were seven finishers in each class.

There were only three starters and two finishers in the Windsor, Ont.,—Los Angeles race over a distance of 2,145 miles. The winner was W. H. Drury, with Kennedy Whyte on a D.H. Moth (A.D.C. Cirrus engine) second, some six hours behind.

THE AIR RACES.

Although the meeting began on Sept. 8 it was not until Sept. 13 that the actual civil race events, other than the finishes of the various "Derbies," began. These five days were otherwise occupied by exhibitions and races by units from the Army, Navy and Marine Corps. Two formations of three single-seat fighters one from the Navy known as the "Sea Hawks" and one from the Army known as the "Three Musketeers" were the principal features of the whole meeting.

The "Sea Hawks," Lieuts. W. R. Davis, Tomlinson and A. P. Storrs, U.S.N., on three Boeing single-seat fighters (Wasp engines), gave a daily exhibition of aerobatics of a very advanced type. They were closely rivalled by the "Three Musketeers," Lieuts. Cornelius, Woodring and Williams, of the U.S. Air Corps, on three Curtiss Hawk single-seat fighters (Curtiss D.12 engines). Unfortunately Lieut. Williams failed to return from inverted flight when low down and was killed, but his place was voluntarily filled by Col. Charles Lindbergh, who led the formation for the rest of the meeting.

The military races included a 50-mile race for Marine Corps Curtiss Falcon two-seat biplanes (Wasp engines), won by Lieut. Cushman at 129.12 m.p.h., a 120-mile race for pilots of the Third Attack Group, Army Air Corps, on Curtiss Falcon two-seat attack biplanes (Curtiss D-12 engines), for the Mason M. Patrick Trophy, won by Lieut. G. R. Acheson at 139.5 m.p.h., and a 120-mile race for pilots of the First Pursuit Group, Army Air Corps, on Curtiss Hawk single-seat fighters (Curtiss D-12 engines), for the John L. Michell Trophy, w was won by Lieut. E. H. Lawson at a speed of 154.74 m. the slowest speed at which this annual race has ever won.

On Sept. 13, the finish of the Transcontinental Non- Air Derby, was scheduled, but as no pilots managed t across without a stop the event was declared to be scrat

The first important event of the day was a 120-mile for military two-seat observation type aircraft for the Li Engine Builders' Trophy. This was won by Lieut. Kar a speed of 142.3 m.p.h. All contestants flew Vought Co biplanes (Wasp engines).

Event No. 2 was a 50-mile race for civil aircraft engines of up to 510 cub. ins. Owing to the numbe entries for this event it was run in four heats, the winners competing in the final which was held on Sept This was won by Earl Rowland on the Cessna mono (Warner Scarab engine) at a speed of 111.74 m.p.h.

On Sept. 14, Event No. 3, a race over 50 miles for civ aircraft with engines up to 720 cub. in. displacement was by D. C. Warren on a Travel Air biplane (Hispano-Suiz gine) at a speed of 123.3 m.p.h.

Event No. 4 for civilian aircraft with engines up to 800 in. displacement over a 75 mile course was won by E Ballough on a Laird biplane (Whirlwind engine) at a s of 132.9 m.p.h.

The next event was a 50-mile race for Naval pursuit craft and this was won by Lieut. Crommelin on a B F2B (Wasp engine) at 148 m.p.h. with Lieut. Cruise Capt. T. W. Driscoll second and third on similar mac at 146 and 145 m.p.h. respectively.

Event No. 15 was a Light Aeroplane Speed Efficiency Contest. This contest was divided two sections, the first for pure speed and second for efficiency. The former was won by E Heath on the Heath Bullet (Bristol Cherub en at 111 m.p.h., and the latter by Lord Carbery on a Moth G-CAXP (A.D.C. Cirrus engine) who although he managed to average 93 m.p.h. in the speed contest act carried 560 lbs. of sand ballast and thus confounded speedier competitors.

Then followed a 50-mile race to two-seat National G aircraft and this was won by Lieut. Brooks on a Do O-2H (Liberty engine) at an average speed of 125 m.p.

The next event was a 50-mile race for pilots of the Pursuit Squadron all mounted on Curtiss Hawk single fighters (Curtiss D-12 engines). This was won by L Cornelius at an average speed of 148 m.p.h. with Li Woodring and Strickland second and third at 147 an m.p.h. respectively.

The final event of the day was a National Parachute J ing Contest open only to Army, Navy and Marine pe nel. For this there were sixteen entrants, each of w had to step off into space at 1,500 ft., and alight within ft. circle. It was won by Sergt. Wahling who got to w 14 ft. 7 in. of the centre of the circle.

On Saturday, Sept. 15, the first event was a 100-mile S and Efficiency Race open to civil cabin aircraft wit gines up to 800 cub. in. displacement. This was wo L. F. Schoenhair, flying a Buhl Airsedan (Wright Whir engine) at 118.74 m.p.h. The fastest machine in this was a Whirlwind-engined Cessna which lapped at m.p.h., but it was disqualified for failing to take off w the required 600 ft.

The next event was a 100-mile race for any type of aircraft with any number of engines carrying 1,000 lb load. This was won by Robert Cantwell on a Lockheed monoplane (Wasp engine) at a speed of 140.3 m.p.h. was followed by Arthur Goebel, also on a Lockheed who averaged 139.7 m.p.h.

On Sunday, Sept. 16, the programme was mainly vided by the Services. The first event was a 60 mile for pursuit aircraft and was won by Lieut. T. P. Jeter, U on a Boeing XFB-4 (supercharged Wasp engine) at a of 172.26 m.p.h. with Lieut. E. D. Cruise, also on a s Boeing, second at 159.8 m.p.h.

The next event was a 25-mile race for Army and Reserve and National Guard pilots, all flying standard solidated PT-1 biplanes. This was won by Lieut. Qui 93.82 m.p.h.

This was followed by a special race for Douglas obser biplanes (Liberty engines) of the 91st Observation Squa from Crissy Field, San Francisco, and this was won by Barber at 127.5 m.p.h.

The next event was a "dead-stick" landing contest, was won by Mr. Firsch in an Aeromarine-Klemm plane, who pulled up four feet from the finishing line.

In a special climbing and diving test to 10,000 ft. Jeter, U.S.N., on the Boeing XFB4 (supercharged Was gine) reached 10,000 ft. in 4 mins. and came down in

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55 secs., his total time being 5 mins. 55 secs. Lieut. Seligman on a Curtiss Hawk (Curtiss D-12 engine) was second in 7 mins. 5 secs.

This concluded the programme insofar as the definitely arranged events were concerned. Estimators say that a crowd of 400,000 people witnessed the racing during the nine days. Everything went off according to plan. And there was only one fatal accident during the whole meeting.

The aeronautical exhibition in buildings adjacent to flying field was not well attended as the crowds that to Los Angeles were there primarily to see the air ra and consequently were not of the type that absorbs n that is of interest from inert aircraft, sectioned aero-eng or petrol, oil or sparking plug exhibits. One who *was* t says that those who *did* visit the stationary exhibits abso much that was of interest under the 18th Amendment.

IMPRESSIONS OF A TRANSCONTINENTAL AIR RACE.

[By "Lone Moth."]

In starting to write these impressions I hope also to give some information that may be of use to future pilots from Great Britain who may wish to see something of the United States by way of an air tour.

The U.S. National Air Races this year consisted first of the Transcontinental Race, divided into several classes. The one that was of interest to the writer was Class A, limited to machines powered by engines not exceeding 510 cubic inches. This class included the Curtiss OX-5 and the new Warner Scarab. As there was no smaller class, it was decided to put G-CAXP up for this race with its 300 cubic inch A.D.C. Cirrus engine.

Before leaving Toronto for Curtiss Field, N.Y., XP paid a visit to Camp Borden, where everything possible was done to increase her speed. Through the kindness of some of the personnel one was able to register 107 m.p.h., electrically timed, over their speed course. This certainly looked promising, but the engine was turning over at 2,100 r.p.m., and it did not seem advisable to "give her full gun" for 3,000 miles. The race was finally flown at between 1,950 and 2,000 r.p.m.

One fine Sunday morning XP, complete with pilot and mechanic, hopped off from Toronto on her way to New York. Visibility was excellent, so a short course across the lake to Niagara was taken. The falls were circled at 1,000 feet and certainly presented a very beautiful sight. From the Falls it is but a step to Buffalo, where we decided to sit down to register with the Customs.

Before leaving Toronto we had telegraphed telling of the probable time of arrival to the collector of Customs, Buffalo. It may not be amiss to mention that from the writer's experience with the Customs' Departments at the various air ports, both Canadian and U.S., pilots get the squarest of treatment, and officials rely largely on the honour of aviators not to bring over any liquor.

At Buffalo XP was provided with a ninety-day free pass on her Canadian registration, and turned loose to proceed South. This she did uneventfully, dropping into Cleveland for the first night, then to McKeesport and Harrisburg.

Soon after our arrival in New York our spirits sank to zero when we saw what we had to face in Class "A." There were several OX-5's, rebuilt and given a high compression, developing over 120 h.p., built into Wacos and Travel Airs. Then there were also the machines powered with the new Warner Scarab, which proved so successful in the Stinson Junior, which took third place in this year's Ford Reliability Tour.

Two machines stood out as potential winners before the word go—the Cessna and the American Moth, which latter, incidentally, is not related to the D.H. variety. Both are monoplanes, the former a full cantilever type, cabin job. The American Moth is a two-place open cockpit, semi-cantilever machine. Both machines were credited with a high speed, exceeding 120 m.p.h., and were fitted with Warner engines turning Standard Steel airscrews. Even had it been possible to secure a Gipsy motor for XP in time for the race it is extremely doubtful whether the position would have been greatly improved against this class of machine.

At Curtiss Field we met an old friend, UG, then starting a pleasure trip with her new owner, Miss Earhardt, of Atlantic fame, to the Pacific Coast. She was not in the race, and we caught up with her later at Pecos, Tex., where she was in trouble with a broken valve-seating. Miss Earhardt was making the trip alone, and arrived safely in Los Angeles some days later.

Zero hour was set for 6 a.m., Sept. 5. Thirty-eight machines lined up, and after drawing for starting numbers, were sent off at one minute intervals. The first control stop was Harrisburg, then to McKeesport and Columbus, Ohio. Day controls called for a thirty minutes' stop to allow for refuelling, and any time over 30 minutes was counted in the elapsed flying time of the race. Overnight stops were compulsory at the night controls, machines being started the following morning again at minute intervals in order of arrival.

At all controls refuelling arrangements were admirably taken care of by the various gasolene companies free of charge, and help was available for any other servicing job. Hotel accommodation was provided at reduced rates, together with transport to and from the various airports. The only adverse criticism the writer could offer might be in the way the general public at most control-stops was allowe crowd round the aircraft. Most children wanted to c all over the machines, and at most places it was unsaf leave a machine unattended for this reason. Airminded has its drawbacks when uncontrolled.

Competitors were required to provide their own maps plot their own courses. Data, however, were supplie the position of airports with plans of their position regard to control stops. The Department of Commerce produced some excellent aviation maps, covering the cipal air routes in the United States to a scale of 1/500, magnetic variation is marked, and magnetic courses ded between various cities.

Comparing these maps with those used in Europe, latter are very much more detailed and accurate, altho entailing more preparation. Should it be found necessa deviate from these Department of Commerce strip maps pilot has to rely on the Rand-McAnally productions, w are very difficult to fly by when compared with t commonly used in Europe. The chief objections to Rand-McAnally maps for flying are the smallness of scale (worse than one in a million) and the total abs of contour lines or any colouring showing lakes, etc. maps which show the railroads do not mark the highw and *vice versa.*

From the time we left Roosevelt Field, N.Y., to arrival in Los Angeles we were lucky in having weather, especially as on the first day the route lay over mountains, and this section has a very bad reputation visibility.

XP had been fitted with a Pioneer turn indicator, we had no real need for it, as the mountains were fre cloud. The second day took us over Terre Haute, Ind., St. Louis, to Kansas City. This city has an excellent port, on which one million dollars has just been sp located six minutes from the business centre of the tow

The boys in the race were a very congenial crowd, and first job at the night controls, after taking care of refuel our ships, was to look out for liquid fuel for the cre Kansas City provided us with a very convenient "sp easy" (under-cover bar), quite near the hotel. Cana beer was available, also whisky, which was very m better than we expected.

From Kansas City on the third day the route lay so by way of Wichita and Oklahoma City, to Fort Wo Texas. With strong head winds all day XP only mad ground speed of 65 miles per hour. The fourth day lan us at El Paso, Texas, by way of Aberline, Pecos and Midla The thermometer registered over 100, but the atmosph was dry.

One of the chief difficulties after Fort Worth prove be the presence of cactus thorns in the sandy airpo XP lost many hours of good time through tyre trouble, as unfortunately no spare tubes were carried or were av able, this frequently meant taking the tube into town t vulcanising station. In desperation we tried out s patent solution, which is injected into the inner tube seals thorn punctures as they occur. This certainly hel considerably.

El Paso is located on the border between Texas Mexico, the Mexican town of Juarez lying just across Rio Grande. This city seems to be made up of gambl joints and drinking saloons. Normally the border bri is closed at 9 p.m., but in honour of the arrival of C "A" competitors an extension was granted to enable pe to return up till midnight. El Paso airport is all sand, rather resembles Heliopolis, Cairo.

The fifth day was a repetition of sandy airports and ca thorns. Our route lay via Lordsburg, New Mexico, Tucs Arizona, to Yuma. The latter town is slightly below level and has the reputation of being the hottest place the United States. On account of delay due to thorns a clogged filter we decided to stay at Tucson, as there no point in sleeping at Yuma if we could make our desti tion the following day.

On the last day's run, leaving Tucson at daybreak, stopped 30 minutes at Yuma, continuing over the mounta to San Diego, our first sight of the Pacific. At San Di Field we rejoined the others, who had left Yuma early t morning. The airport here is very large and one of chief aviation centres on the Pacific Coast. The race en

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after one hour's flight from San Diego to Mines Field, Los Angeles. Out of 38 starters only 21 finished, including the D.H. Moth with the Cirrus engine, which was the smallest machine in the race.

The National Air Races at Mines Field, Los Angeles, were run in conjunction with an Aircraft Exhibition and were spread over a period of a week. It was by far the largest show of its kind the writer has ever seen. There was a daily programme of stunting and formation flying, put on by the Army and Navy air units. There were races for commercial and service aircraft round a five-mile pylon course, parachute drops, etc.

At Los Angeles the most impressive stunting was done by the three "Sea Hawks" on Wasp-engined Boeing pursuit ships. Unfortunately the Army trio, the "Three Musketeers," lost its leader by the death of Lieut. Williams. The Army were not using radial engines, and this one fatal accident of the meeting was due to a failing engine while in an inverted position too near the ground. Another rather impressive sight was a formation of nine aircraft looping together at low altitude.

Among the small machines an object of interest was the Heath Bullet, with a Bristol Cherub engine, which rather reminded one of the Tiger Moth. This little machine was reputed to have a speed of 130 m.p.h., or more.

The D.H. Moth was entered for two of the events at Mines Field.

The Class "A" closed course race of 50 miles fell to the winner of the Transcontinental, Earl Rowland, in his Cessna monoplane. XP, although qualifying for the final in the eliminating heats, did not take part in it, as she was due to race in the Light Aeroplane Speed and Efficiency Race, and it was decided to save the engine for this.

The light aeroplane event carried two prizes, one for speed and the other for speed and efficiency combined. This was calculated on the formula m.p.h. multiplied by weight carried and divided by the cubic displacement of the engine. The first half, for speed alone, naturally fell to the Heath Bullet, but XP managed to get away with the second half by loading in 560 lbs. of sand ballast. The take-off had to be within 800 ft., which was easily accomplished, thanks to a strong headwind.

The Cirrus engine, by surviving such a long race with no mechanical trouble, came in for a lot of admiration. The only spares carried were four sparking plugs and two spare valves and valve springs. None of these were required.

NEW AERO ENGINES IN THE U.S.A.

Some very interesting movements in connection with engines for light or medium-weight aeroplanes are taking place in the States. These should be carefully noted by British manufacturers as the whole future of trade in British aircraft overseas depends on what our manufacturers do to compete with American products.

THE AEROPLANE is primarily devoted to furthering the progress of aviation without regard to nationality. But naturally one cannot help having a certain prejudice in favour of seeing British products do best in the World's markets.

We here are not so unreasonable as to expect that British aircraft and British aero-engines will corner the markets. We are quite prepared to share the money of the rest of the World with our relatives in the United States. But if all the warnings published in THE AEROPLANE for the past few years are ignored by British manufacturers, then all one can say is that the United States will deserve to have the majority of the World's aircraft business.

First of all, the great Lycoming Manufacturing Company of Williamsport, Pennsylvania, which has lately been bought out by the Auburn Co., which in turn is the property of Mr. Wrigley, the Chewing-Gum King, have now got their first aero-engine running.

This is a 9-cylinder radial with cylinders 4½ inches by 4½ inches. It is rated at 185 h.p. at 1,950 r.p.m., and it weighs a little under 3 lbs. per h.p. However, the makers hope to get 200 h.p. out of the production engines and to get between 25 to 30 lbs. off the weight. The price of this engine will be about £400.

As to the details of this engine, one gathers that it has cast-iron cylinders, there are no white metal bearings, the connecting-rod ends being of duralumin, running direct on chromium-plated pins in the master rod, which is of steel. There are no oil pipes, so it is claimed that there will be no plumbing troubles, all oil passages being holes drilled in the metal. Another interesting feature is that the cooling fins on the cylinders are not parallel to the crankshaft, but are sloped out to the line of the cowling so as to be directly in the run of the slip-stream.

Another interesting bit of information is that the Packard Co. have produced a 9-cylinder radial air-cooled engine which runs on a complete Diesel system without electric ignition. This is said to give 200 h.p. for only 500 lbs. Rumour says that it has done a thirty-two hour test under full power. The designer is a German named Dorner, working under the supervision of Messrs. Woolson and Edwards, the Pack Co.'s own engine experts.

Before gambling on the Packard one would like to se pass the U.S. Government tests, which are just about severe as our Air Ministry tests. We have heard so m in the past about Packard engines which were going revolutionise aviation that one is still a little sceptical al Packard aeronautical products until they have actually m good. Everybody knows the excellence of the Packard but Packard aero-engines still have to make their reputat

Another bit of news is that Johnson Motors of 57th Str New York City, well known as makers of motor-boat gines, have just completed a new 4-cylinder air-cooled in- engine rather like the Cirrus, and are now going into duction with it at their Connecticut factory. The cylin are said to be 4⅝ by 5 inches, all steel, with aluminium he It is to give between 80 and 100 h.p. and is to sell at 1 dollars.

INEXPERT EVIDENCE.

Experts on all subjects invariably disagree. One always get two specialists of equal standing in any pro sion to contradict one another flatly. Consequently can find test pilots and scientists alike who will approve condemn with equal vehemence anything new in connec with aircraft. Consequently at the finish the most relia guide is the opinion of the everyday user of an aeroplane

As such the opinion of Mr. Alfred Borden, a well-kno business man in New York, probably carries quite as m weight in an argument on the slot question as does tha the most expert pilot on either side of the Atlantic. Borden, writing on Sept. 12, says :—

> Last week I flew an Avro Avian equipped with slotted wings. sensation was really quite astounding. I have been a pilot Sept., 1919, and always sub-consciously have felt the necessit locking out for stalls and spins. All that feeling went in flying Avian, in addition to which it is no trick at all to land the If this automatic slotted wing appliance is as distinct a step in adv as it seems to me, then it should be compulsory to equip all comme planes with them.

Mr. Borden does not profess to be any kind of a st pilot, and he has not been a Service pilot, nor is he c cerned with any aircraft firm. Consequently his opinion that of an unbiassed intelligent user of aeroplanes, and it is of high value.

AVIANS IN AMERICA.

As indicated in THE AEROPLANE last week, Air Associ Inc. of Fifth Avenue, New York, one at least of wh principals, Mr. James B. Taylor, is well-known to aviat people in this country, have been appointed sole distribu for the Avro Avian in the United States and the Ameri overseas possessions.

As an initial order Air Associates Inc. have contracted take fifty Avians during each six months of the ter of the agency. These are to be delivered at the rate of per week. So far as can be gathered this is the larg single order for light aeroplanes that has so far been pla with any firm.

An interesting sidelight on what this order means is the White Star and Cunard lines will between them ca some 1,200 freight tons of aircraft to the United St during the next six months.

MOTHS FOR CHILE.

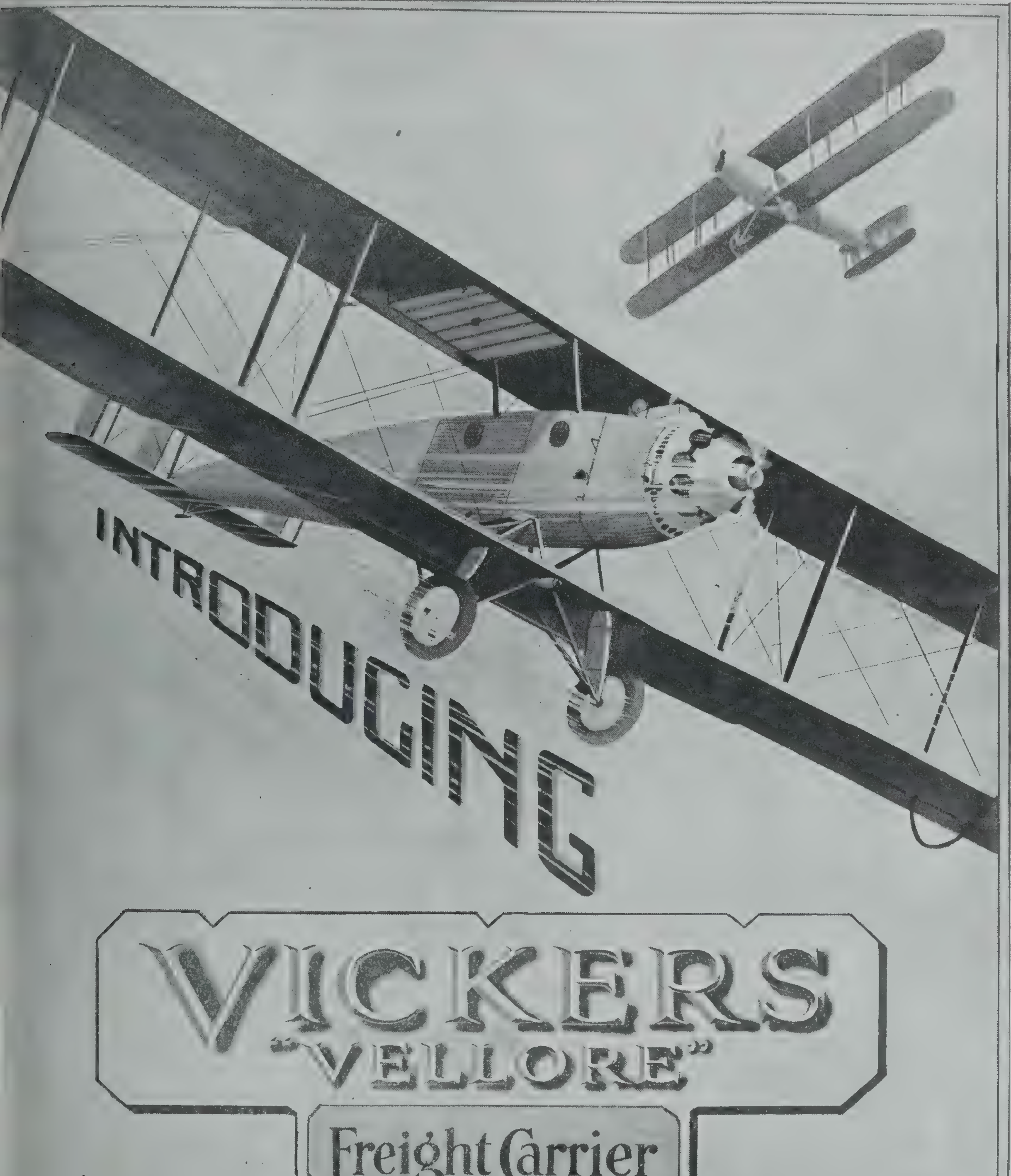
The De Havilland Aircraft Co. Ltd. has received an o from the Chilean Government for forty G type Moths (G engines). Twenty of these are to be fitted with extra t capacity for long-range flying. All these machines are be delivered by the end of the year.

STRIKING SPARKS IN CANADA.

History seems to be repeating itself. Our old friend, F. G. M. Sparks, who is now Chief Instructor to the Mont Light Aeroplane Club, flew to Windsor, Ont., from Mont on the Club Moth to take part on Sept. 8 in the Essex Cou Derby in connection with the opening of the Walker port. There were about eight starters and he won, after wh he flew back to Montreal. The journey there and back 1,220 miles, not counting the racing.

This reminds one of the day when an entirely unkn aviator, who turned out ultimately to be a Mr. F. G. Sparks, turned up at an air race meeting at Croydon f somewhere in the wilds of Wales with an old Renault-engi Avro which he had faked up himself, and proceeded to all the best races of the day and nearly ruined the local bo makers by backing himself.

In a letter to THE AEROPLANE Mr. Sparks says that thi aeronautical are booming in Canada and that he is glad went out there. Also he says that the type of man wh learning to fly in Canada is astonishingly keen and very to teach. This looks as though Canada will soon be abl supply herself with the pilots who will be needed for air transport boom there.



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THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]
Aerodrome: Stag Lane Aerodrome, Edgware, Middlesex.
Instructors: V. H. Baker and F. R. Matthews.

Report for week ending Oct. 7.

Flying Time: 70 hr. 35 min.; *Instruction*: 38 (30 hr. 10 min.); *Soloists*: 30 (40 hr. 25 min.).

Notes.—On Oct. 6 Miss Fletcher made the qualifying flights for the Aviator's Certificate.

Solo Flying.—P. W. Hoare, who flew over 15 hours during the last month, has already completed his maximum amount of subsidy flying time for the year. During the week-end Mr. Hoare made a flight to Newcastle and back.

Mr. C. W. Bonniksen, who recently obtained his "A" Licence and has his own Moth, flew to Leamington and back.

Pilot Instructors.—In establishing the record flying time for September, the two Club Pilot Instructors were given very little rest as the following figures will indicate:—V. H. Baker, 103 hr.; F. R. Matthews, 84 hr.

Many War-time pilots are availing themselves of the facilities offered by the Club to keep up their flying. Capt. Roche-Kelly, T. Elder Hearn, J. V. Fairbairn, J. A. G. Haslam, N. Young, and B. O. Davis are amongst the regular soloists.

The Lancashire Aero Club.

[Sec.: F. W. Atherton, Avro Aerodrome, Woodford.]
Chief Instructor: D. E. Hall.
Voluntary Assistant Instructors: J. C. Cantrill and J. J. Scholes.
Ground Engineers: Bartram and Chapman.

Report for week ending Oct. 6.

Flying Time: 12 hr. 55 min.; *Instruction*: 2 hr. 55 min.; *Soloists and Passengers*: 10 hr.

Notes.—Mr. D. E. Hall, who succeeds Mr. Todd as Chief Instructor and Aerodrome Manager, arrived towards the end of the week, and managed to put in some instruction despite very adverse weather conditions.

The afternoon of Oct. 6 was set aside for the first contest for the George Pemberton Trophy, which will in future be competed for quarterly. The competition was open to *ab initio* trained Club pilots only and took the form of a landing competition under the following regulations:—

A tape to which were attached coloured streamers to make it more clearly visible from the air was suspended between two light posts at a height of 5 ft. above the ground. On the windward side of the tape an area representing a small field was marked out by white tapes stretched along the ground. Competitors had to ascend to 1,000 ft., shut off their engines and glide in over the tape which represented a hedge, pulling up, if possible, within the limits marked out by the white tapes. A maximum of ten points was awarded for each of the following:—Style of approach, style of landing, distance from the hedge after coming to a standstill. In order to eliminate the risk of accident an Instructor sat in the front seat ready to put on the engine and take control in case of need.

The weather was good with a light breeze and a very interesting contest resulted in a win for Mr. R. F. Hall with a total of 23 points. Mr. B. A. G. Meads was second and Mr. M. A. Lacayo third.

In the evening a Hot-Pot Supper was held at the Club House which was attended by nearly seventy members of the Club. The Trophy—a very fine model of a Moth in silver gilt standing upon a fluted column,—was presented to the winner by Mr. John Lord, one of the Club's Vice-Presidents, amid acclamations.

The Yorkshire Aeroplane Club.

[Sec. Lieut.-Col. J. Walker, The Aerodrome, Sherburn-in-Elmet.]
Instructor: G. R. Beck.
Chief Ground Engineer: R. Morris.
Assistant Ground Engineer: T. Houghton.

Report for week ending Oct. 6.

Flying Time: 23 hr. 15 min.; *Instruction*: 9 (7 hr.); *Soloists*: 4 (3 hr. 55 min.); *"A" Pilots*: 11 (11 hr. 45 min.); *Passengers*: 3 (35 min.).

Notes.—On Sept. 30 Mr. George Lloyd made his first solo and put up a very good show. Mr. G. Clapham, an old "B" Licence pilot, made a re-appearance after many months' absence, and is taking an "A" Licence.

On Sept. 29 Lady Heath arrived in her Moth.

During the Winter months the Club will be open from 10.00 hours until dusk, except on Tuesdays, when it will not open until 14.00 hours. Monday will continue to be the weekly holiday.

We are endeavouring to develop the social side of the Club beginning with a Whist Drive on Oct. 17 at 19.45 hours. We hope all members and their friends will support it. If this is a success, we hope to continue them during the Winter.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]
Aerodrome: Castle Bromwich.
Instructors: Flt. Lt. Rose, D.F.C., and W. H. Sutcliffe.
Ground Engineer: W. J. Halland.

Report for week ending Oct. 6.

Flying Time: 36 hr. 4 min.; *Instruction*: 22 (16 hr. 50 min.); *Soloists*: 16 (14 hr.); *Passengers*: 11 (4 hr. 5 min.); *Test*: 1 h min.

Notes.—The total flying time for September was 200 hr. 38 min., flights.

On Sunday Flt. Lt. Rose flew XT from Sywell to Castle Bromwic

The Hampshire Aeroplane Club .

[Sec.: H. J. Harrington, Hamble Aerodrome, Hants.]
Instructors: Flt. Lt. Swoffer and W. H. Dudley.

Report for week ending Oct. 5.

Flying Time: 34 hr. 40 min.; *Instruction*: 25 (21 hr. 45 mi *Soloists*: 5 (21 hr. 30 min.); *"A" Pilots*: 10 (49 hr. 35 min.).

Notes.—Mr. M. S. Hall completed his tests for the "A" Lice this week. Mr. Evershed made a most successful first solo flight Oct 4.

On Oct. 7 Lady Heath and Capt. Percival arrived on the latt Avian.

We are still working with only one machine. The weather been good, but a deep depression is centred over the Hampshire owing to shortage of aircraft.

The Norfolk and Norwich Aero Club.

[Manager: Basil Young, The Aerodrome, Sprowston.]

Report for week ending Oct. 7.

Flying Time: 21 hr. 15 min.; *Instruction*: 10; *Soloists*: 19.

Notes.—Five first solos were made by Messrs. L. Lowen, W. Rope, G. T. Anderson, L. Morter and A. Kirkby. All creditable formances, although Mr. Morter's landing was not quite up to expe tions.

Mr. Fred Gough has this week completed 100 hours' flying w the Club, and we venture to think this is a good record. During 100 hours he never had one accident to his credit, but ten minu after completion of the century one of the rocker arm castings br and compelled him to land hastily and unfortunately caused to enter one little accident in his log book. It is however a creditable performance to complete 100 hours actually without accident and sheer bad luck to have one directly afterwards. would be interesting to know if this is a Club Record.

Dr. Odgers delivered a very interesting lecture on Thursday on the Wind Channel and Streamlines, and we are very much debted to him. Next Thursday week Mr. J. D. North has kin promised to lecture on The Light Aeroplane and the Private Ow This is a subject bound to excite interest generally and we exp a large attendance of members and friends.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadleigh
Instructor: G. E. Lowdell, A.F.M.
Ground Engineers: "C," E. Mayhew; "A," G. Keeley.

Report for week ending Oct. 6.

Flying Time: 12 hr. 15 min.; *Instruction*: 8 (3 hr. 25 mi *Soloist*: 1 (3 hr. 15 min.); *"A" Pilots*: 3 (2 hr. 30 min.).

Notes.—Dr. Sleigh, an "A" Licensed pilot member, flew to on Oct. 6, and Mr. Lowdell also went to Diss. The object of trip was to show the machines to school children and others at interested in aviation.

We have just reorganised our engineering staff and are trying experiment of having two ground engineers; one for engines wit "C" Licence and the other for rigging with an "A" Licen Both our men served in the Royal Air Force at Martlesham and is their first job in Civil Aviation. As we are on the verge of acq ing a third machine, the idea being to try to maintain two in c mission and one in reserve; the work is too heavy for one alone. We have therefore come to the conclusion that it will better to have two specialists on engines and rigging rather t what might be termed a general-purposes ground engineer and unskilled assistant. Other recent additions to the maintenance are petrol and oil pumps. These are a great economy both in mo and time, while they certainly assure greater cleanliness.

During the week the A.I.D. descended upon us in force and to gratification they commented very favourably upon these sev new innovations. The next move will be to house all three machi in the new shed and turn the old one, as funds and circumstan permit, into a reasonably well-equipped workshop which should pr another step towards economy. The fact that we have kept machi and equipment to the forefront accounts for the club-house not hav materialised as yet. It is hoped, however, to rectify this before m moons.

The Bristol and Wessex Aeroplane Club.

[Sec.: Major G. S. Cooper, D.S.O., Filton Aerodrome, Bristol.]
Instructors: Bartlett and Tratman.

Report for week ending Oct. 6.

Flying Time: 22 hr. 5 min.; *Instruction*: 11 hr.; *Soloists*: 8 25 min.

Notes.—Ten pupils were given instruction during the week—two solo flying. Mr. Evans received his first dual instruction, and Hall made a successful first cross-country solo flight from Stag L to Filton. Mr. R. S. Clarke also made his first solo flight. Downes-Shaw made two cross-country flights, to Stag Lane and ba and Mr. Bartlett and Mr. Dutton flew to Sherborne and back.

New pilot members continue to join, and now that we have second Moth TV back from overhaul we only need some good weat to make us really busy.

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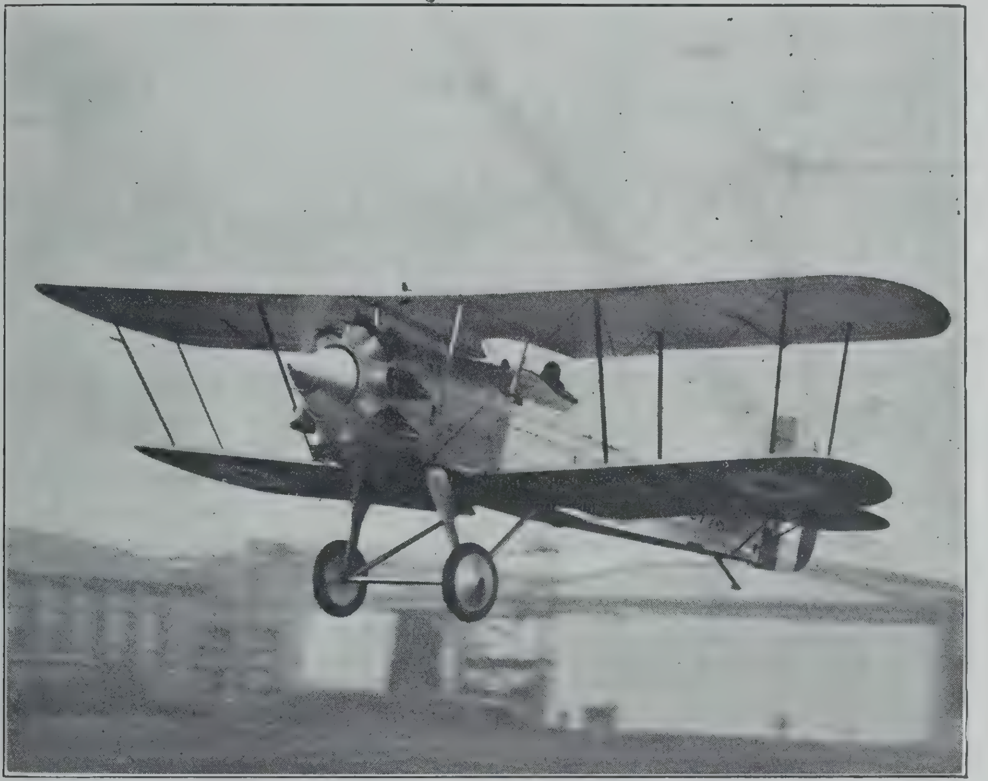

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The Cinque Ports Flying Club.

[Sec.: R. Dallas Brett, 114, High Street, Hythe.]
Aerodrome: Lympne.
Instructor: I. N. Clarke.

Report for week ending Oct. 6.

Flying Time: 17 hr. 35 min.; *Instruction*: 8 (11 hr. 45 min.); *Soloists*: 2 (3 hr.); *"A" Pilots*: 2 (45 min.).

Notes.—During this week Moth NN was dismantled for painting and re-rigging, but Moth SS was in constant use.

Mr. Skinner of Ashford, who qualified for his "A" Licence last week, has done dual instruction with Mr. Clarke in aerobatics. During an unsuccessful loop, the machine hung on the top, and a watch belonging to the Ground Engineer fell out of Mr. Clarke's pocket somewhere over the Racecourse. Anyone finding a somewhat battered watch in this locality is asked to return it to the Secretary or the Aerodrome. Later Mr. Skinner went out by himself for looping practice, and succeeded in doing two very good loops after two spectacular failures.

On Oct. 6 Mr. Mackinnon of Tonbridge and Mr. Walsh of Folkestone successfully accomplished their first solos. The Club heartily congratulates both members, who have passed through their training period quickly, and who are now flying solo very satisfactorily.

The Liverpool and District Aero Club.

[Hon. Sec.: W. F. Davison, Hooton Park Aerodrome, Wirral.]
Instructor: Flt. Lt. B. Allen.

Report for week ending Oct. 6.

Flying Time: 21 hr. 55 min.; *Instruction*: 23 (11 hr. 25 min.); *Soloists*: 10 (4 hr. 55 min.); *"A" Pilots*: 3 (3 hr. 5 min.).

Notes.—Mr. Moulsdale flew his tests for R.Ae.C. Certificate in a very satisfactory manner.

On Mondoy Mr. Davison, our official observer, flew XX to Squire's Gate, Blackpool, to pass out several pupils of the Lancs. School of Aviation for their R.Ae.C. Certificates. He and his passenger, Mr. Moulsdale, returned on Tuesday morning, having seen Blackpool illuminated.

On Thursday morning, Mr. Murrell, of Aerofilms Ltd., piloted by Mr. Allen, flew for 1 hr. 50 min. on aerial photography work. Mr. and Mrs. Bentley arrived on Friday in pouring rain, Bentley later returning to London. On Saturday Mr. Barber hit the deck rather too hard, with the result that XY requires a new undercarriage wing and prop. With great forethought Mr. Barber had selected a machine which was due for a top overhaul anyway. Constant rain on Friday and ground mists almost every evening have cut down our flying hours considerably.

Work on the Club-house is proceeding, and the building will be ready for occupation by the end of this week. Gifts from members of chairs, small tables, and other suitable furniture will be most welcome.

The Isle of Purbeck Light Aeroplane Club.

[Hon. Sec.: Lt.-Col. L. A. Strange, D.S.O., M.C., D.F.C., Worth Matravers, Dorset.]
Instructor: H. W. R. Banting.

Report for week ending Oct. 6.

Flying Time: 18 hr. 40 min.

Notes.—Once again we have been able to settle down to Club work, and this week we have had the satisfaction of producing our first two "A" Certificates—Mr. C. O. Powis and Lt.-Col. L. A. Strange. The official observer's remarks on the former's performance was very gratifying. We are indebted to Mr. Powis for the use of his Moth OT, which has been assisting the hard-worked Spartan. There is keen competition between the next half-dozen budding soloists and we all hope the good work will now continue in earnest.

The Berks, Bucks and Oxon Aeroplane Club.

[Hon. Sec.: Miss L. Cribb, 12, Highmoor Road, Caversham, Reading.]

The Club is organising an Inaugural Air Meeting, to take the form of an air display, on Oct. 27, at Sheep Bridge Farm, Basingstoke Road, Swallowfield, Reading, by kind permission of the owner, Mrs. Hunter. Starting at 11.00 hours and continuing all the afternoon, there will be joy-riding, air races, competitions, and demonstrations by well-known pilots

The Flying Club of Ulster.

[Hon. Sec.: Flt. Lt. R. C. Preston, A.F.C.]

This Club, which has previously appeared under the name of the Belfast Flying Club, held its first General Meeting on Sept. 28. Brig.-Gen. Groves, Secretary of the Air League, was to have addressed the gathering, but owing to heavy fog in Liverpool the Calcutta in which he was to have crossed did not run on that day. After various speeches by individuals representing all sections of the business community, a Provisional Committee was formed under the Chairmanship of Capt. R. L. Henderson, with the following members: Major W. L. Adeley, Flt. Lt. S. D. Briggs, Councillor S. D. Cheyne, Mr. S. G. Haughton, Capt. T. H. Herrist, M.B.E., Mr. R. L. Kemp, Mr. W. W. McLeod, Flt. Lt. R. C. Preston, A.F.C., and Mr. W. D. Scott.

The Committee sat again "in plenary session" on the following Wednesday, and it was decided to issue a brochure at an early date setting out the following: (A) The Light Aeroplane Club movement generally; (B) Why Ulster should form a Club of its own; (C) Events leading up to the formation to date; (D) Estimate of capital expenditure and running costs; (E) A few words of encouragement from leading lights; (F) An application for membership form.

The most conservative estimate possible was made up, and a copy sent to every existing Club asking for criticism. Secretaries of these Clubs are asked to be indulgent amid their multifarious duties and give any figures they can in support or otherwise.

A further meeting of the Provisional Committee is to be held on Oct. 17 and by then it is hoped a draft copy of the brochure will be available.

The Regina Flying Club.

[Hon. Sec.: R. A. Delhaye, 2321, Lorne Street, Regina, Sask.]

Since the Regina Flying Club started activities at the beginning of July instruction has been given to 40 out of their 100 members. Eight of the 40 members have already gone solo.

The flying time of the Club up to the first week in September is 189 hr. 20 min. devoted to 589 dual instruction flights, and 54 hr. to solo flights.

The subsidy from the Government is the loan of two Moths, the cost of maintenance to be borne by the Club. The Regina City Coun has asked the Club to appoint three of its members to the board the new Municipal Aerodrome, which it is hoped will be opened ea in the Spring. At present the Club machines are housed in a hang erected on the flying field of the Universal Air Industries, but as so as the Municipal Aerodrome is ready the Club will transfer its hea quarters there.

FLYING SCHOOLS.

The Henderson Flying School.

[Managing Director: Lt.-Col. G. L. P. Henderson, Brooklands Ae drome, Byfleet.]

Report for week ending Oct. 4.

Flying Time: 30 hr. 55 min.

Notes.—Very little dual was done last week owing to our activit in Joy-riding. A new private owner, Mr. J. L. May, is about to co into being. We have nearly completed building a Mono-Avro for hi

A number of new pupils have applied to the School in the l fortnight, so our Winter may be much busier than usual.

The De Havilland Flying School.

Report for week ending Oct. 7.

Flying Time: 111 hr.; *Instruction*: *Dual*, 32 hr. 40 min., *Solo*, 59 50 min.; *Other Flying*: 18 hr. 30 min.

Notes.—One pupil made an excellent first solo, and another p formed both his cross-country and height tests for "B" Licence.

Although the flying school is getting slack, great activity preva at the Stag Lane factory. New buildings are rapidly springing i being, and just as rapidly the production rate of the Gipsy-M increases.

Amongst those taking delivery of new Gipsy-Moths last week w Lieut.-Comm. Glen Kidston, R.N., who flew over in his new acquired Fokker monoplane; The Rt. Hon. F. E. Guest, P.C., M.P.; a the Basle Aero Club, a newly-formed aeroplane club in Switzerla Many other machines were despatched (per regular programme) Canada and Australia.

The new D.H.61 bought by *The Daily Mail* has been undergoi test, and will shortly be ready for handing over.

AUSTRALIAN APPRECIATION.

A.D.C. Aircraft Ltd. have received the following let dated Oct. 3:—

The following is a copy of a W/T signal received to-day from Controller of Civil Aviation, Melbourne:—

> Kindly convey to Airdisco my apprecation radiogram advisi success Cirrus Mark III. International competition held O aaa. Particularly gratified learn Percival's success and outstandi merit British engines and light aircraft under competitive c ditions. Ends.
>
> (Signed) W. H. Anderson, Wing Commander, R.A.A.F.
> (Australian Liaison)

[And the congratulations are well deserved by the engi and the machine and the pilot.—C. G. G.]

Flying Club Members
need not
Languish in Gaol
if the Club Library has
THE LAW IN RELATION
TO AIRCRAFT
by
Lawrence Arthur Wingfield, M.C., D.F.C.
and
Reginald Brabant Sparkes, M.C.
(Solicitors of the Supreme Court).
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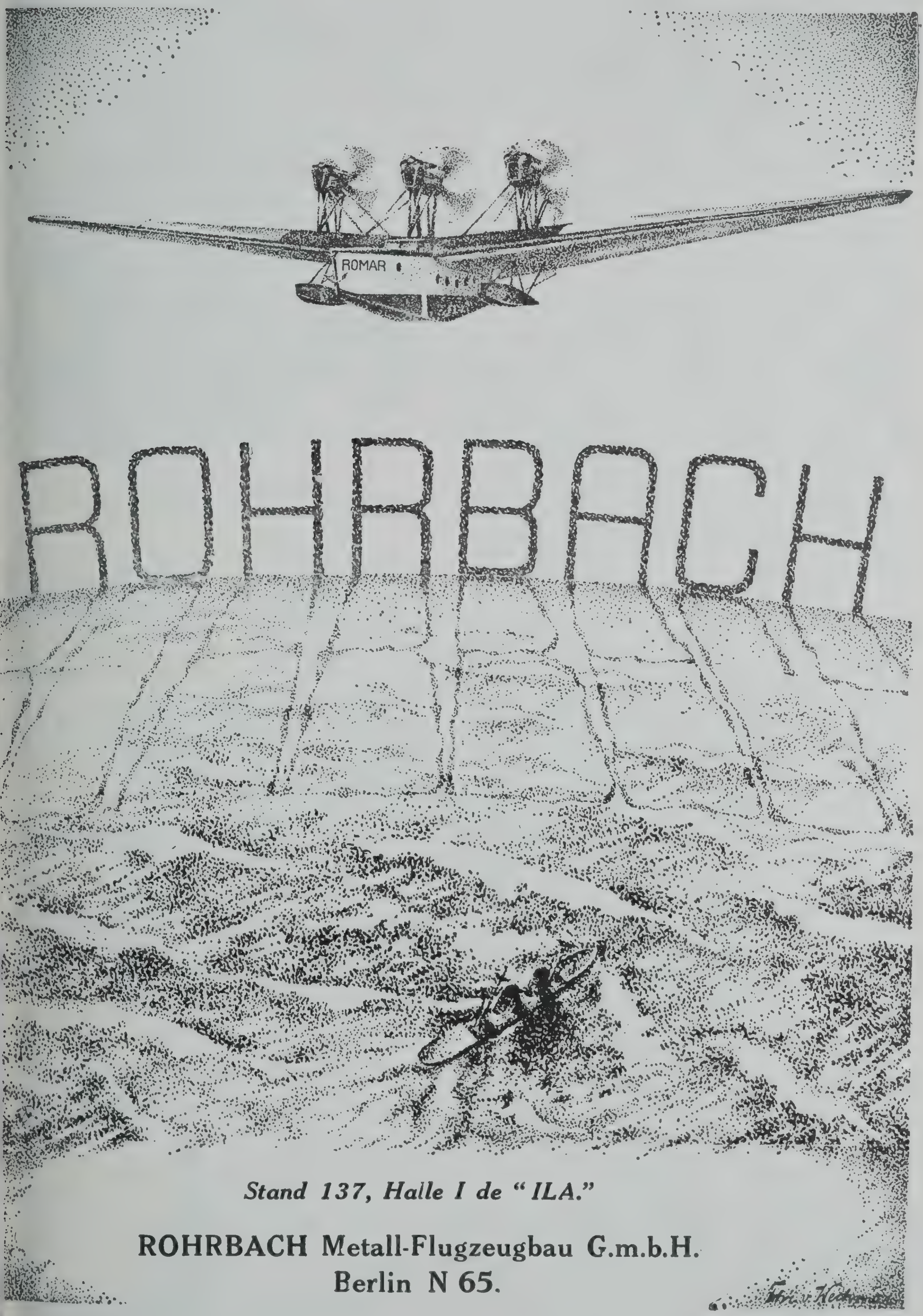
From
THE AEROPLANE BOOK DEPT.,
Cannon House, Pilgrim Street,
Ludgate Circus, E.C.4.



Stand 137, Halle I de "ILA."

ROHRBACH Metall-Flugzeugbau G.m.b.H.
Berlin N 65.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 8; Monday, 26; Tuesday, 22; Wednesday, 23; Thursday, 25; Friday, 24; Saturday, 28.

Imperial Airways Ltd.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 72, passengers 585, freight 25 tons.

Air Union:
Paris—London and return: Machines 40, passengers 140, freight 11 tons.

K.L.M.:
Amsterdam—Rotterdam—London and return: Machines 12, passengers 69, freight 6 tons.

Sabena:
Brussels—London and return: Machines 12, passengers 42, freight 1½ tons.

Deutsche Lufthansa A.G.:
Amsterdam—London and return: Machines 14, passengers 56, freight 3 tons.

Miscellaneous:
British machines 6, passengers 5.
Foreign machines 0, passengers 0.

Total number of trips by British Machines, 78, carrying 590 passengers. Foreign Machines, 78, carrying 307 passengers.

COMPARATIVE FIGURES.

Week ending Oct. 6:
Machines, 156; Passengers, 897; Crews, 307; Total personnel, 1,204.
Corresponding week, 1927:
Machines, 129; Passengers, 779; Crews, 241; Total personnel, 1,020.
Corresponding week, 1926:
Machines, 84; Passengers, 367; Crews, 103; Total personnel, 470.
Corresponding week, 1925:
Machines, 95; Passengers, 369; Crews, 121; Total personnel, 490.
Corresponding week, 1924:
Machines, 111; Passengers, 466; Crews, 137; Total personnel, 603.
Corresponding week, 1923:
Machines, 60; Passengers, 132; Crews, 89; Total personnel, 221.
Corresponding week, 1922:
Machines, 101; Passengers, 305; Crews, 163; Total personnel, 468.
Corresponding week, 1921:
Machines, 80; Passengers, 214; Crews, 109; Total personnel. 323.
Corresponding week, 1920:
Machines, 125; Passengers, 196; Crews, 143; Total personnel, 339.

Croydon Notes.

The week before last the count of passengers on the Cross-Channel services fell just below 1,000 for the first time since Spring. Last week they fell to below 900. With Summer Time at an end a still further drop must be expected, for passengers will not rise earlier and aircraft must get to bed sooner.

A comforting feature of this falling off is that British traffic is holding up better than that of our competitors. Last week the number of British machines crossing the Channel was exactly equal to the number of foreign ones. A majority of foreign machines has been the rule heretofore, though that majority has rarely carried half the total traffic. Last week little more than a third of the passengers were carried on foreign machines.

All that this means is that now that the rush season is over and Imperial Airways have now nearly enough machines to cater for the traffic offered them, passengers are travelling by the line of their preference and not using an alternative because they cannot be carried on British machines.

All three of the Argosies are now back in service, the victim of the Le Bourget "pot hole," G-EBOZ, having returned to Croydon after repairs on Tuesday.

Lt.-Cdr. Glen Kidston's negotiations for the acquiral of the late Mr. Lowenstein's Fokker have, report says, been satisfactorily concluded. The date of the impending expedition after big game has not yet been announced.

The joy-ride season being now practically ended, Surrey Flying Services propose to give their main attention during the winter to school work. During the past few months they have assembled a dual-control Avro with an oleo-pneumatic undercarriage of the standard Lynx-Avro type which has been used with great success for teaching purposes.

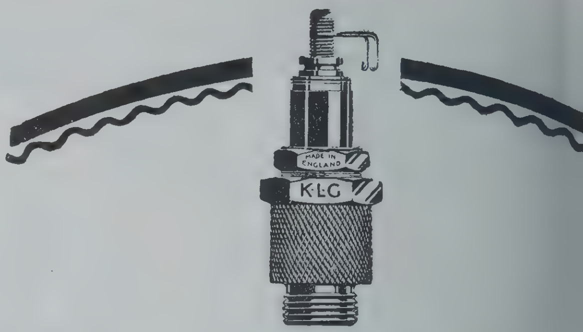
The undercarriage in particular has proved to be very much better than the older type for this class of work, and a second machine of the same kind is now being put together.

Croydon may not be the ideal aerodrome for school purposes, but one can always rely on Surrey Flying Services to do thoroughly anything to which they turn their hands, and pupils can rely on sound training at their establishment.

CROSS-CHANNEL FARES FOR THE WINTER.

Imperial Airways announce that from Monday, Oct. 8, substantial reductions in fares come into force. The single fare London-Paris by the "Silver Wing" service is reduced from £5 15s. 6d. to £4 15s., and the second-class fare from

$26.07 - $21.20



K·L·G

SPARKING PLUGS

were chosen by

Lady Heath

for her Solo, British

altitude record

in the

D.H. Moth Aeroplane
("Cirrus" Engine).

October 4, 1928.

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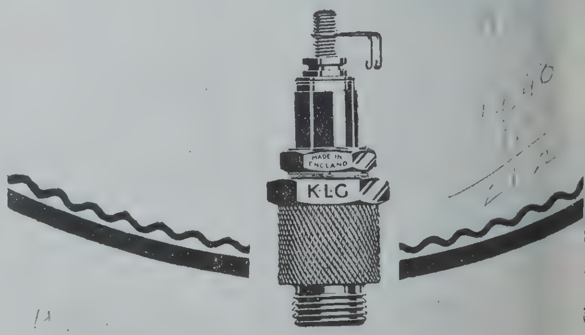

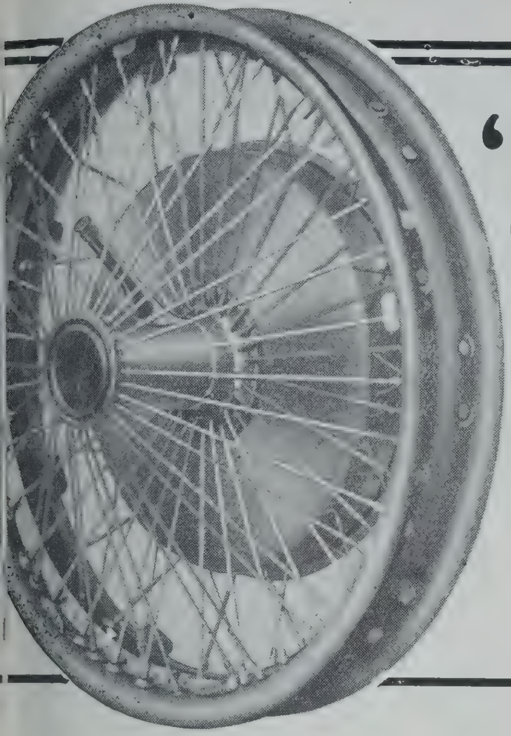

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means the same satisfaction when applied to Aeroplane equipment as it does in the realms of cycling, motor-cycling and motoring.

Dunlop Aeroplane Tyres are the approved fitment on an ever-increasing number of machines.

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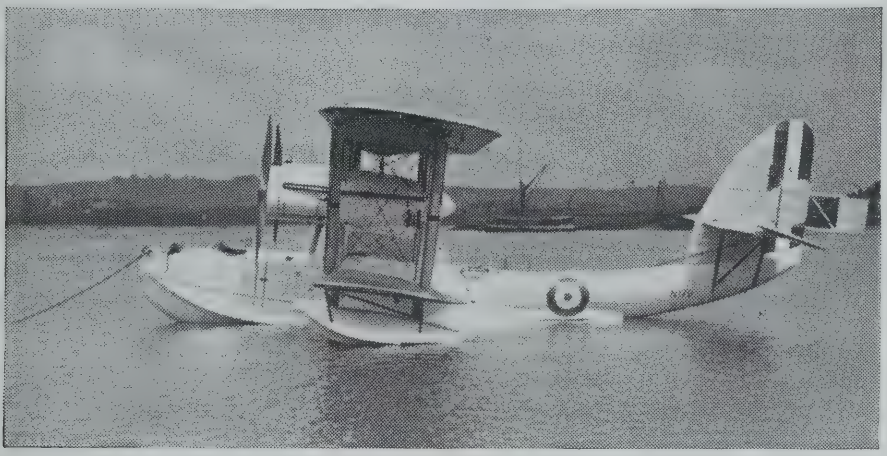

The SHORT "Singapore" 2 Rolls-Royce "Condors"
Cellon Dope.

For the flight of survey round Africa, completed by Sir Alan Cobham, K.B.E., A.F.C., the Dope used on the machine was

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Cellon (Richmond) Ltd., Cellon Works, Petersham Road, Richmond, Surrey.

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RIPON

THE "RIPON II" NAPIER-ENGINED TORPEDOPLANE

with gunner's cockpit immediately behind the pilot. Equally suitable for coastal-defence, reconnaissance, bombing, and torpedo-carrying purposes. Built to operate as a seaplane or a landplane. Adopted by the FLEET AIR ARM of GREAT BRITAIN and by Foreign Governments.

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P.1.

OCT. 17, 1928.

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ON THE GERMAN AERO SHOW.

Germany as a nation, and the German Aeronautical Com- unity in particular, deserve to be congratulated by the st of the World on having organised not only the First ternational Show of Civil Aircraft ever held (at any rate ice aeroplanes began to fly properly) but also on having t together the most interesting aero show yet seen.

Also it is, unless one is much mistaken, the biggest show t held. One has no figures by which to check the state- ent, but there seem to be more aeroplanes in the Inter- tionale Luftfahrt-Ausstellung, familiarly known as the Ila, an in any Paris Show, and there are certainly more motors, d more component parts and accessories.

Altogether it is a magnificent effort, and, if there is thing startlingly new to be seen, it is a wholesale educa- on in the aeronautical development of the World. For nich those aircraft designers and constructors from other tions who can afford, or are intelligent enough, to visit should be duly grateful to Germany.

† To von Tschudi. †

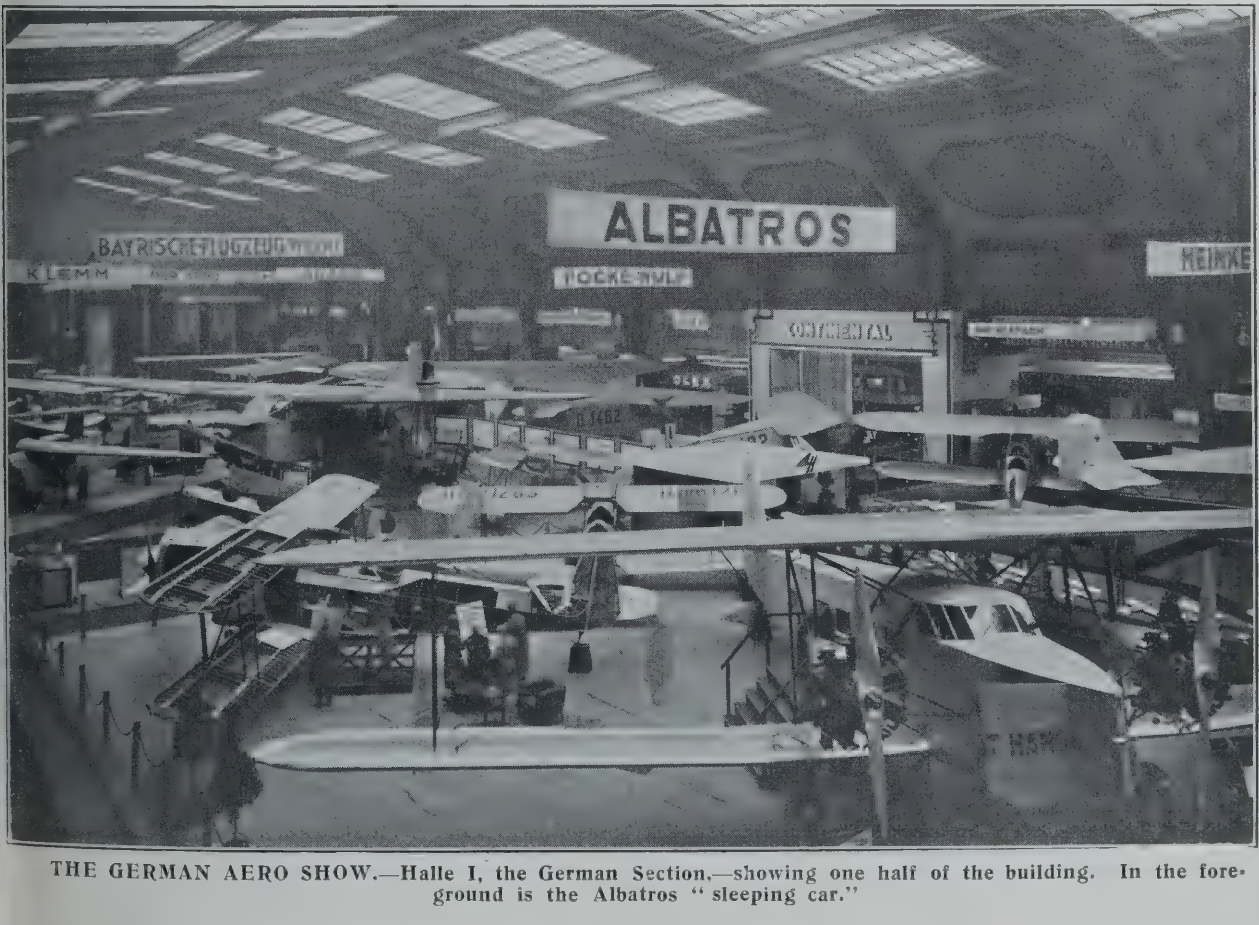
For this great success Germany and the rest of us are iefly indebted to Major von Tschudi, whose death on e opening day of the Show cast a shadow over all the icial proceedings, and still more over the spirits of those 10 knew and loved him. He died, like many another great hting man, in the hour of his triumph. But he lived ng enough to see that the triumph had come, for he was ly ill for two weeks before his death, and only gravely for a few days.

Von Tschudi was, in a curiously quiet way, the greatest an in German Aviation. Up till the outbreak of War in 14 he had, as a serving officer, been closely concerned with the practice of aeronautics in all its branches from its earliest days. During that time he worked always for a kindly international feeling, and he had made many friends in England.

When War came he did his duty as an officer and gentleman for his Country and his Emperor. And when War ceased he was one of the first to do his duty to his Country by working for international harmony. He renewed his old friendships and he made many new friends,—among whom one is proud to be counted. By the English section of the Inter-Allied Commission in Germany he was regarded not merely as a personal friend, but as a worker of the first order for peace and progress.

There were those in Germany who regarded him as too international and not enough bound by his own nation's interests. How wrong they were may be seen by the position of German Aviation to-day,—unsurpassed by any nation in the World, and working amicably with all other nations to the great benefit of Germany, largely because of the friends made by von Tschudi, when, under the difficult conditions of the time, a less honest and less honourable man would have made either enemies or merely suspicious business connections.

One of the characteristics of von Tschudi which made his friendships so firm was his outstanding honesty. Few men had greater opportunities of making money or of taking advantages to himself during the years after the Armistice, yet he remained poor. During the period of the financial inflation in Germany, when respectable pensions and private incomes from investments faded to nothing in a day, there were times when von Tschudi, doing work of vital importance for his Country, could not be sure of his next meal. Yet he never used his position for his own profit.



THE GERMAN AERO SHOW.—Halle I, the German Section,—showing one half of the building. In the foreground is the Albatros "sleeping car."

The only advantage he took of that terrible period, still known in Germany as The Inflation, was to buy for the German Aero Club at a low price the magnificent building which is now the centre of German Aviation,—the Club, the Trade, the Sport, and International Relations alike. It will stand always, one hopes, as a monument to von Tschudi's honesty and foresight alike.

As a friend, out of business hours, von Tschudi was always a joy. His keen sense of humour, his quaint philosophy—that of a philanthropist posing as a cynic—and his ready wit, made him the best of company. The only trouble his friends had was that he was such a busy man that his company was hard to get. Few men have been so well respected and so well loved at the same time.

To replace von Tschudi in German Aviation is impossible. Perhaps there is no need to replace him. Perhaps the need for him is past. Fate has a way of allowing people to pass away at the right time. Just as, according to the proverb, the time always finds the man, so when the time is past the man may pass too, happy that he has done his work well.

GERMAN AERONAUTICS TO-DAY.

At the Aero Club of Germany the Secretarial work will be divided between on the one hand Major von der Groeben, an old official of the Club, and on the other hand von Tschudi's personal assistant for the past few years Herr von Hoeppner, the able and amiable son of that distinguished General who during the War 1914-18 was Commander-in-Chief of German Military Aeronautics. The Club is fortunate in having them, for the traditions of von Tschudi will be kept.

The affairs of the Trade Society, of which Dr. Huth, chief of the famous Albatros firm, is the head, are ably handled by Dr. Tetens, who has done all the practical work of organising the Show,—and every exhibitor will acknowledge that the organisation has been splendid.

Nothing could have been better than the arrangements made by Dr. Tetens and his assistants for the transport of exhibits, and for the passing of Customs and so forth. And here the English exhibitors owe thanks to Mr. Karlowa, who represented the Ila in London and worked tirelessly and tactfully to bring English aircraft to Berlin for our own good. That he was not more successful was due to our undefeatable insularity.

The only hitch occurred when the exhibits were actually in the Show,—for then the Contractor who had undertaken to build the stands failed to find the money to pay his men, who went on strike. And so the poor stand-holders got none,—till they built their own.

In spite of this incident the Show Authorities managed to have the whole thing ready on time, with true German precision, and they went to work in such a friendly way they secured the hearty co-operation of all the foreig hibitors. The Englishman is the World's prize grun But never, in some thirty years' experience of exhib in three different trades, has one heard less grousing ag the management by the stand-holders,—and some of in charge of the British stands at the Ila can be fairly critics when they so please.

The German Exhibits.

The exhibits of the various nations are very interesti displays of national characteristics.

Naturally the German exhibit is much bigger than a rest put together. Everything is staged with excellent and judgment. The machines can be seen and touch they must be pretty well worn by now, judging by the informed inquisitiveness of the hordes of young Ger who were all over the Show during the four days one there.

Each machine is well described by placards. The little decoration, but all of it is at once artistic, solid striking,—there are no frills and cheap finery about

The standard of design and work in the German planes is very high,—as is evident when one consider many World's Records for distance, duration, and we lifting which have been beaten by the products of Junkers, Heinkel, Rohrbach, and Dornier firms. The ternal finish might be better. Some of it appears r according to our standard. But then, German machine all kinds, motor-cars and everything else, has always famous rather for being fit for hard work than for pretty to look at.

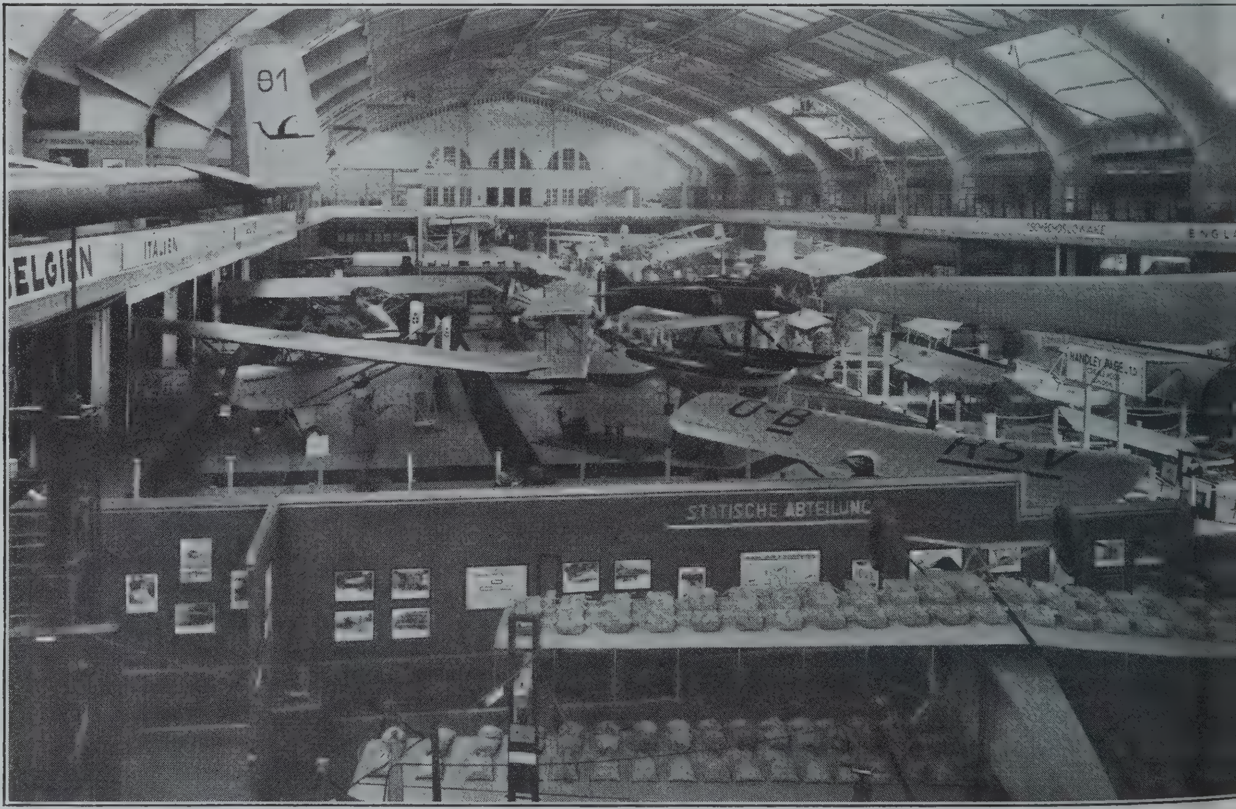
The general effect of Halle I, which is all-German, i pressive. And this is due not only to the colossal Rohr Junkers, and Dornier machines, but to the rugged b (rather in the American sense of rugged) of most o other aircraft. A few of the aeroplanes are undeniably but the proportion is lower than in any show one has

The German engines are magnificent. Some of the types will become worthy competitors of the En American and French engines which have hitherto ha pick of the market in high powers.

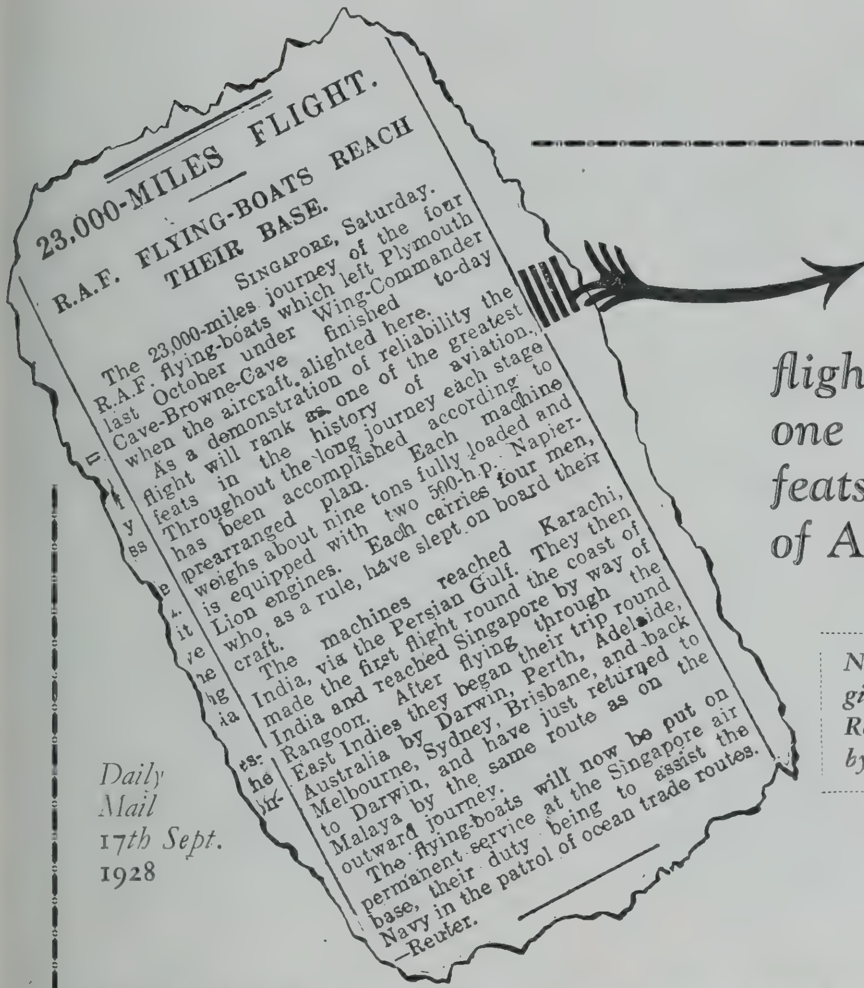
The Foreign Exhibits.

Halle II, which is foreign territory, is at once inform and amusing. Every nation has a co-operative exhibit cept England. And the result is that looking down from gallery one gets an impression very like that of flying the countries themselves.

At one end is a vast open steppe sparsely occupied by exhibits of the Union of Socialist Soviet Republics,—by w grandiloquent title Bolshevik Russia prefers to be kn



THE GERMAN AERO SHOW.—Halle II, the Foreign Aircraft Section. In the foreground is a bit of the German technical research section. In the middle is the Macchi Speed-Record seaplane.



23,000-MILES FLIGHT.

R.A.F. FLYING-BOATS REACH THEIR BASE.

SINGAPORE, Saturday.

The 23,000-miles journey of the four R.A.F. flying-boats which left Plymouth last October under Wing-Commander Cave-Browne-Cave finished to-day when the aircraft alighted here.

As a demonstration of reliability the flight will rank as one of the greatest feats in the history of aviation.

Throughout the long journey each stage has been accomplished according to prearranged plan. Each machine weighs about nine tons fully loaded and is equipped with two 500-h.p. Napier-Lion engines. Each carries four men, who, as a rule, have slept on board their craft.

The machines reached Karachi, India, via the Persian Gulf. They then made the first flight round the coast of India and reached Singapore by way of Rangoon. After flying through the East Indies they began their trip round Australia by Darwin, Perth, Adelaide, Melbourne, Sydney, Brisbane, and back to Darwin, and have just returned to Malaya by the same route as on the outward journey.

The flying-boats will now be put on permanent service at the Singapore air base, their duty being to assist the Navy in the patrol of ocean trade routes.
—Reuter.

Daily Mail
17th Sept.
1928

"AS a demonstration of reliability the flight will rank as one of the greatest feats in the history of Aviation."

Napier engines will also give YOU this service. Reduce maintenance costs by employing the Napier.

184,000 engine miles without mishap!

BY flying in formation from England to Australia, round Australia and back to Singapore—184,000 engine miles—the four Royal Air Force Supermarine-Napier flying boats have accomplished a feat the like of which has never before been achieved.

The whole flight was accomplished without engine trouble.

The engines were not specially tuned for the flight but were standard Napiers taken from Stores.

The prearranged timetable was adhered to throughout.

The engines selected were the tried and proved—

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There is something sinister about this area. At one corner is an illuminated sign bearing the letters U.S.S.R. Above it all, on top of a miniature Eiffel Tower, of aluminium, are the hammer and sickle and star of Bolshevism, done in a sort of Neon light, which must be seen all over the hall. The office is made of sheets of some aluminium alloy. The machines are strange distortions of familiar shapes. In fact the whole thing vaguely suggests the famous film "Metropolis,"—and there is something futile and childish about it, like the film. It is sinister only because it suggests latent possibilities of terror.

Across the gangway is the French display. The machines and engines are prettily set out, as by a good house-keeper,—a couple of quite new and practical civil aeroplanes, a veteran of an heroic World-flight, a rather poor example of an ordinary aeroplane, and the carcase of a colossal joke, a *blague* for the sake of *réclame*. Hot air and hard practical sense are combined in the typical Gallic manner.

Further along is the Italian area. Five perfectly good war machines, with the gun-ring emplacements hardly even camouflaged, masquerade as Civil aircraft. Each flaunts aggressively the fasces and axe of the Roman lictors,—badge of the Fascisti,—and looks about as much like a commercial aeroplane as the Fascist militia look like a civil police force. The whole display has the fine swash-buckling air of the Mussolini period,—a renaissance of the renaissance, and a healthy South-Eastern outpost against the Hammer and Sickle.

Next to Italy is little Belgium, plain, honest and hard-working as usual,—one useful small aeroplane and samples of good work well done.

Opposite to Italy and next the Bolsheviks is the Czecho-slovak area,—square-cut rugged machines, full of intelligent design, and good workmanship, with just enough of the bizarre in their finish to show that they come from somewhere a little to the East of Europe proper,—a trifle oriental for the strict Mittel-Europa taste, and quite far from Western Europe. But they are good, and respectable, and not at all barbaric.

Then, tucked in a corner, at the end of the open space of Czechoslovakia, and opposite co-operative Belgium, is a funny little huddled mass of partitions and fences and ropes and counters, which is supposed to represent Great Britain, and the Overseas Dominions of the King-Emperor. It is just like looking down on the tiny fenced gardens and hop-fields of Kent after flying over the plains of Europe. But when you circumnavigate the partitions, and penetrate the fences, you find the best workmanship and design in the Show.

Each little stand turns its back on its neighbour, and officially keeps apart from it, in the best English individualistic manner,—what time the owners of the stands, in acc with our English contradictoriness, herd together in the p lic gangway as at the village inn (when not actually do business on their stands). There they smoke together open defiance of printed regulations, and of patient if p sistent protests from entirely amiable policemen and firem who gave up the English as hopeless after two days friendly endeavour to make the incurably lawless understa the true significance of the blessed word *verboten*.

And there the English, in between hectic spells of r business and the busy-ness of receiving official visits, lau at the rest of Europe, with a strong reservation in favour Germany. For these few days in Berlin have taught people the soundness of the view of that German officer w at some international gathering before 1914, raised his gl to the English representative and said "Let us drink to two white nations." Truly the Teuton and Anglo-Sax branches of the Nordic people need worry little about any else if so-be that they hold together on both sides of Atlantic.

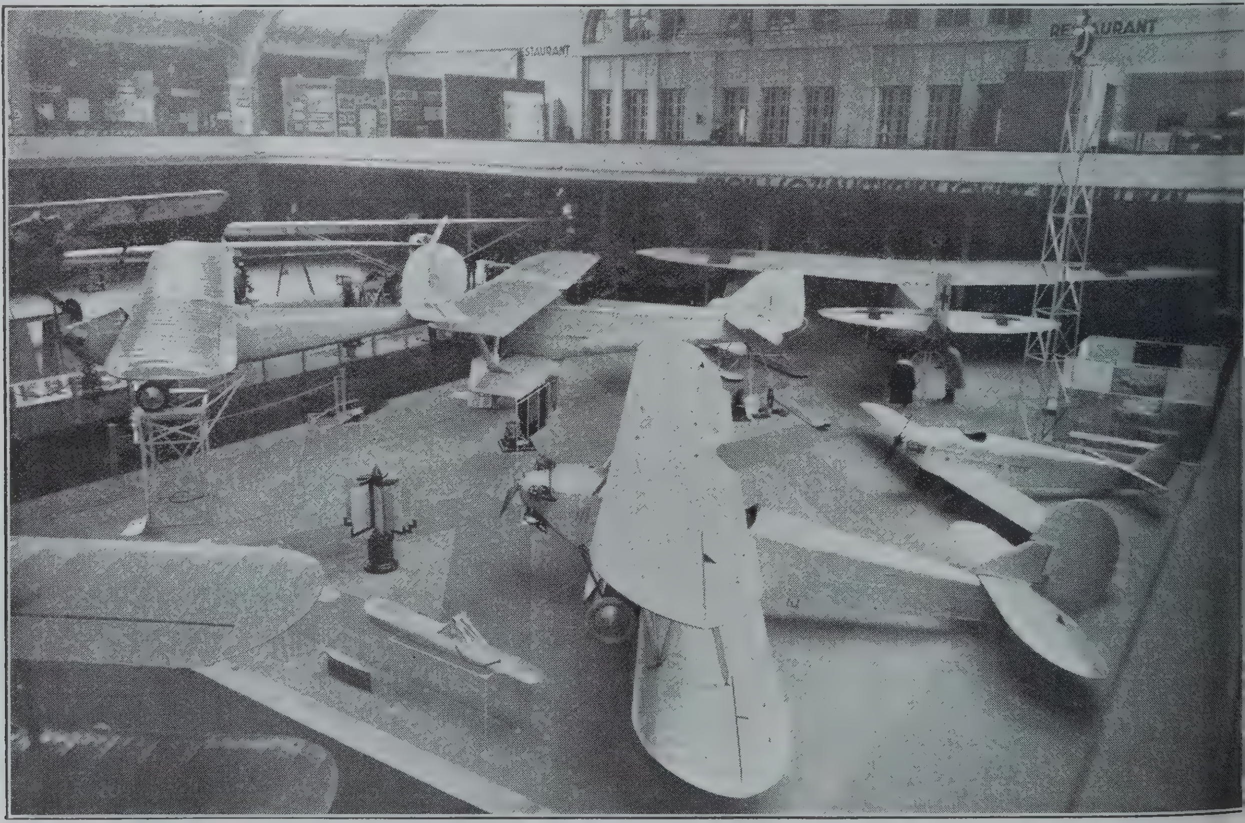
GERMAN WELCOME.

Nothing could pass the kindliness and hospitality of German aeronautical people to the English visitors. T good class German is courteous rather than polite. He a manner rather than manners. His bow is the salute o soldier rather than the deflection of a politician. And th is no mistaking his hand-shake. When once the Englishm has become accustomed to a few superficial differences social etiquette he feels at home in Germany as nowhere e except in Holland and, to some extent, in Scandinavia.

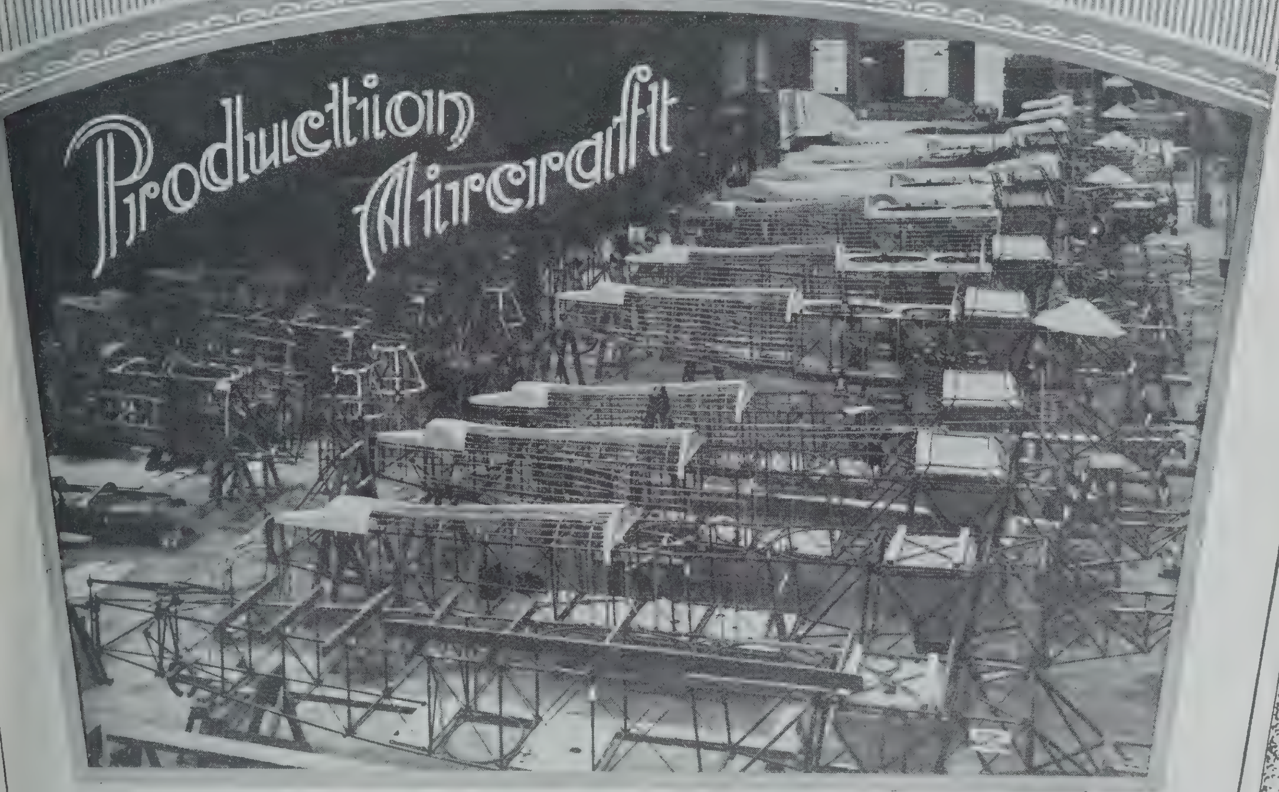
One of our greatest aircraft manufacturers once remark that the World is divided into nations which eat breakf and those which do not, and that the breakfast-eat owned most of the World. Which is true. And the Gern eats breakfast and drinks beer and smokes, and sees funny side of life, as an Englishman does. So naturally feel at home in Germany.

Certainly English aeronautical visitors in Berlin have their full share of hospitality. First there was a Be Evening given by the Municipality of Berlin to all exhibit at the Ila. Then, on Wednesday, the Reichsverband Luftfahrt Industrie, which corresponds to our S.B.A.C., g a first-class banquet at the Kaiserhof Hotel to all exhibitor the chiefs of each firm being invited as honoured guests the assistants having the privilege of attending if so dispo

At this one was much struck by the way in which vast assembly stood reverently to attention while the dig fied Dr. Huth delivered an impressive eulogy on the belo von Tschudi in the course of his speech of welcome to guests. And the English should have felt honoured t Colonel the Master of Sempill, as Chairman of the R



BOLSHEVISMUS.—The open steppe-like stand of the U.S.S.R.,— with its Hammer and Sickle sign aloft and its all-aluminium-alloy exhibits.

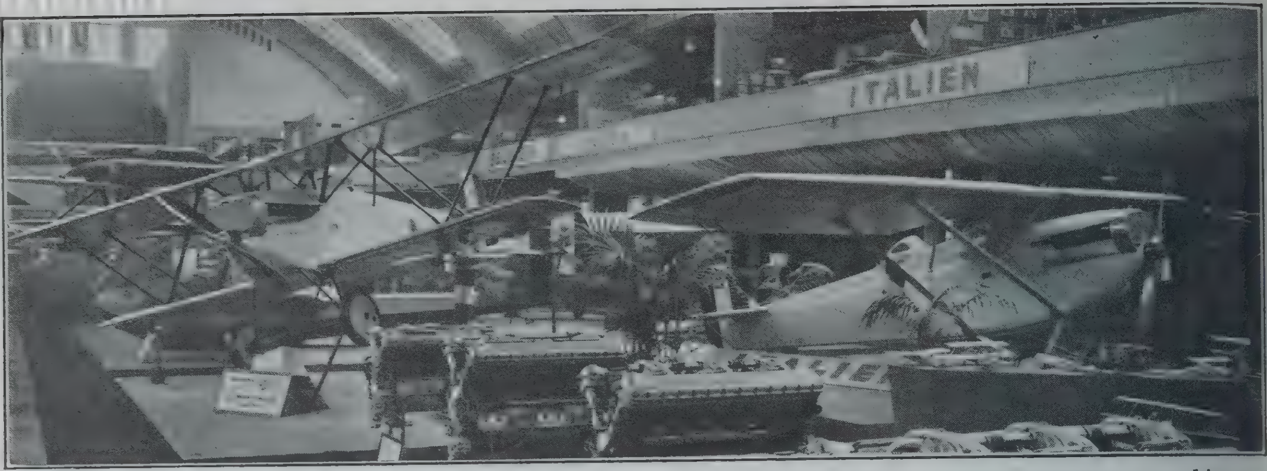


A Section of the Main Erecting Shop shewing All-metal Air Craft in the course of construction

NOW that metal construction forms the usual means of modern aircraft construction, the advantages of quantative production to the user are even more apparent than hithertofore. The increased use of press tools which becomes possible when large numbers of aircraft are being manufactured, and the more complete utilization of jigs for all components and parts—just to mention two features — render not only a more accurate and effective construction, but also forms an important service item in the true interchangeability of spare parts.

FAIREY AIRCRAFT

THE FAIREY AVIATION CO., LTD., HAYES, MIDDLESEX



ITALY'S PEACE-SHOW.—The single-seat Fiat post-fighter and the two-seat Fiat mail-reconnaissance machines.

Aeronautical Society, should have been asked to reply,—which he did very well.

On Saturday the Aero Club of Germany gave a thoroughly enjoyable lunch in honour (combined) of the British Director of Civil Aviation and of the Editor of THE AEROPLANE,—a conjunction which has never happened before in history. One hopes that Sir Sefton Brancker's reputation will suffer no evil result.

The Chairman of the Aero Club made a charming speech of welcome,—in which again von Tschudi was duly honoured. Sir Sefton replied in his usual happy vein,—and thereafter we English (Group Capt. Flack and the benevolent Mr. Hodgson being the other guests) spent a couple of extremely pleasant hours with some thirty of the leaders of German Aviation, ranging from star fighting pilots of the War, to commercial and industrial men, and scientists.

TO THE BRITISH TRADE.

While in the Ila one met a number of members of the British Aircraft Trade other than exhibitors. One hopes that many more will go to Berlin before the show closes on the 28th. We have much to learn from our cousins the Germans, just as we have from our brothers in America. And the quicker we learn it the better we shall be. In any case a visit to Germany is worth while, if only to broaden the minds of people whose ideas of Europe are derived from a trip to an Aero Show in Paris and a night out as a sequel.

Before proceeding to report the Show in detail one wishes here to offer to the German Aeronautical Community, on behalf of the British Aeronautical Community, most sincere congratulations on the fine display at the Ila, and deep sympathy in the loss of Major von Tschudi. Also one wishes the greatest commercial success to the Ila and to the German Aircraft Industry.—C. G. G.

IN THE ILA.

The German Section.

ERNST HEINKEL FLUGZEUGWERKE G.M.B.H.,
Warnemünde.

Herr Heinkel, who may well be considered the leading builder of float seaplanes on the Continent of Europe, shows a 6-seater low-wing monoplane seaplane, the H.E.10, which is distinctly interesting. The wing is of the bi-convex type not quite of a symmetrical section, and the fuselage is so shaped that the bottom of it coincides with the lower surface of the wing, thus giving an extremely clean line to the lower part of the machine. The engine is a B.M.W.6 (500-750 h.p.). The cabin, totally enclosed, contains the pilot and passengers. On top of the cabin is an odd-looking hoop which is actually the antennæ for the radio apparatus. The whole fuselage is of welded steel tube.

The machine is for the Deutsche Luftverkehers Schule, an is intended to train pilots in long-distance over-sea navigation.

One gathers that arrangements have been made for these training-machines to visit Edinburgh and Felixstowe.

ENCLOSED COUNTRY.—A goodly part of the English Exhibit,—with much of the best work in the Show to be found in it.

particularly interesting point about this machine is that h the bi-convex section there is a saving of 150 kgs. in ght in the wings only, the rate of climb is the same and e is an increase of 20 km.p.hr. in the speed against an ctly similar machine with the old type of wing.

n the same stand is an H.D.24, which is a normal type wo-seater biplane with a wheel undercarriage, designed school work and training. The engine is a Junkers L.5 h.p.) or the machine will take a B.M.W. or a Siddeley ia or an A.B.C. Nimbus. A machine of this type has been ght by the U.S. Government for the use of Major Rein- g, the U.S. Army Air Corps Attaché in Germany.

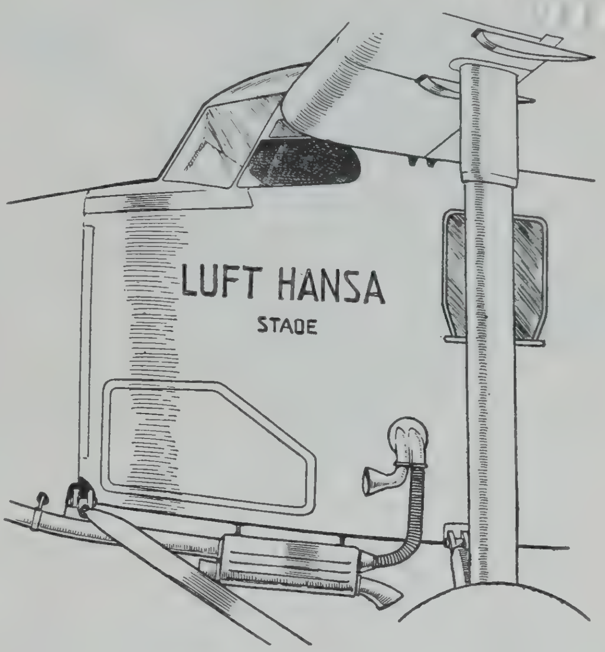
n the stand also are various models of other Heinkel es, the most interesting of which is a model flying-boat a Bristol Jupiter engine designed to be catapulted from n-going liners. This particular design has been produced the "Hapag," which is allied to the Norddeutscher Lloyd. s to be catapulted from ships in the way already been erimented by the French, but one hopes with more suc- .

is machine is interesting in that the engine is fixed a way out in front, which is necessary to give the proper nce. In practice it has proved a way to safety, for in an erimental flight an airscrew burst and wrecked the engine, h damaged the deck of the boat without injuring any e crew.

FÖCKE-WULF FLUGZEUGBAU A.G.,
Flughafen, Bremen.

ree Föcke-Wulf machines are shown. The A.20a, abicht" is a high-wing full-cantilever monoplane with a n to carry 4 passengers and pilot. It has the pigeon- sted shape which is typical of the Föcke-Wulf products. it the most striking feature is the undercarriage, in h the two lower members on each side are hinged to bottom of the fuselage and the vertical telescopic strut its sprung end right inside the thickest part of the wing. is told that this particular machine has been built for Roselius of Bremen, who is the chief of the Kaffee firm, for his personal conveyance.

e G.L.22 has two 100 h.p. Siemens radial engines, and tended as a school machine for future pilots of twin- ned machines. The engines are built direct into the s and the vertical strut of the undercarriage telescopes e engine-mounting on each side. The arrangement is , and apart from being a useful school machine, it should uite nice for touring, as the cabin holds five comfort-

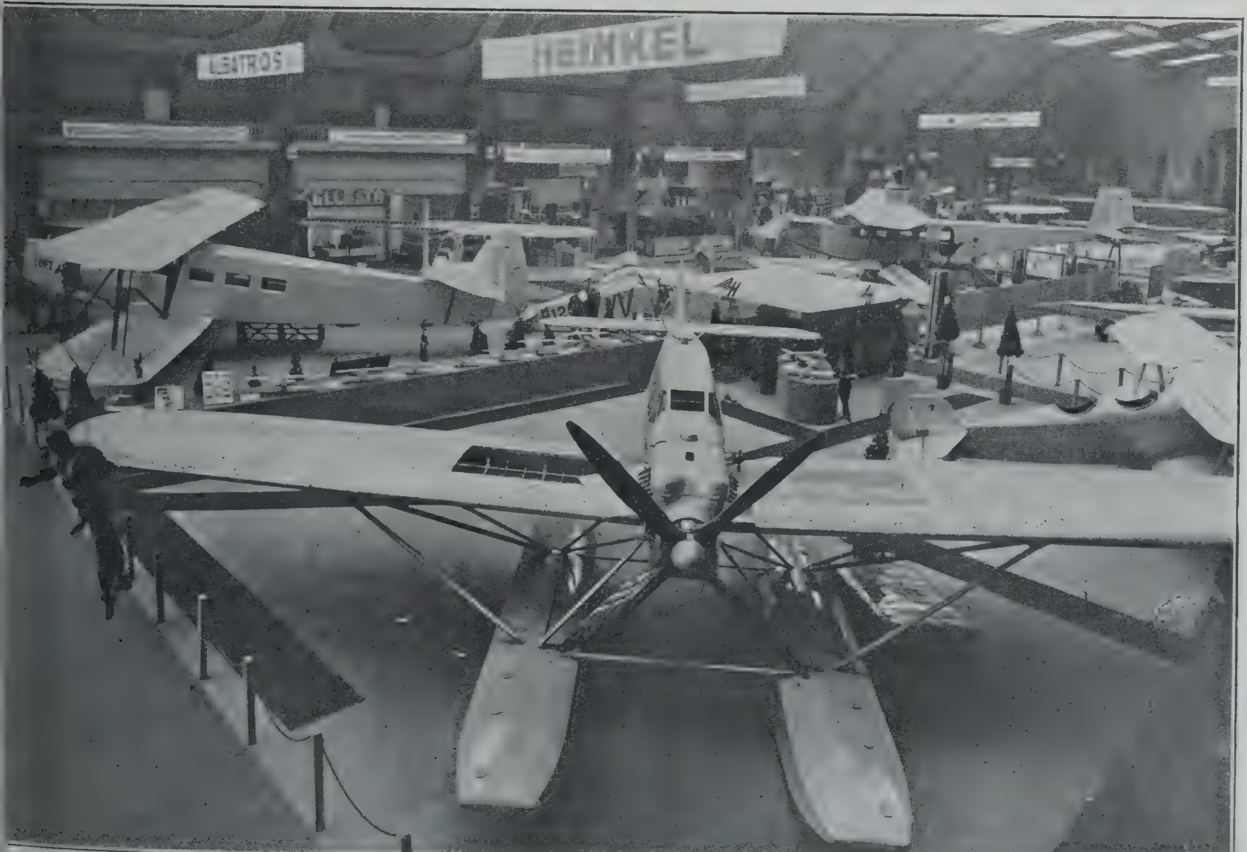


VENTILATION.—The cabin heater and fresh-air scoop of the Föcke-Wulf.

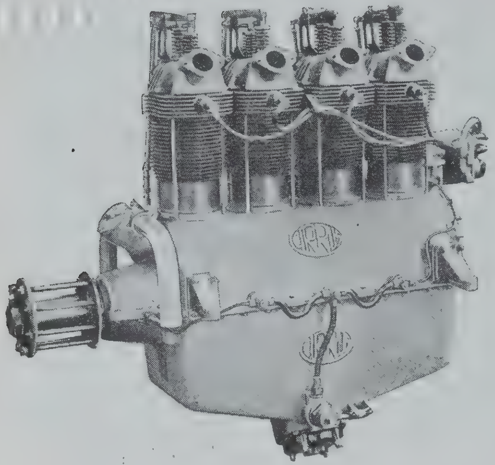
The A.17a "Moewe" (Seagull) is a high-wing full-cantilever monoplane with a geared Bristol Jupiter engine. In appearance it is very like a big Fokker. The cabin holds 8 passengers, 2 pilots and 200 kgs. of baggage. There is a sensible doorway from the passenger-cabin to the pilots' seats. One little luxury fitting, which must cost the machine 2 or 3 miles an hour, is an elaborate cabin-heater fixed to the exhaust-pipe on the side of the machine.

ARADO-HANDELSGELLSCHAFT M.B.H.,
Potsdamer Str. 75, Berlin, W.57.

The designer of the Arado machines, Herr Rethel, was formerly with Mr. Anthony Fokker in Schwerin. This probably accounts for the Arado machines being so like Fokker products.



GERMANY'S FINEST SEAPLANE.—The Heinkel monoplane with bi-convex wings. The detachable tank arrangement is well worth noting, as an improvement on our method of sticking up humps or hanging on blobs which ruin the performances of our machines. The big Albatros is seen on the left.



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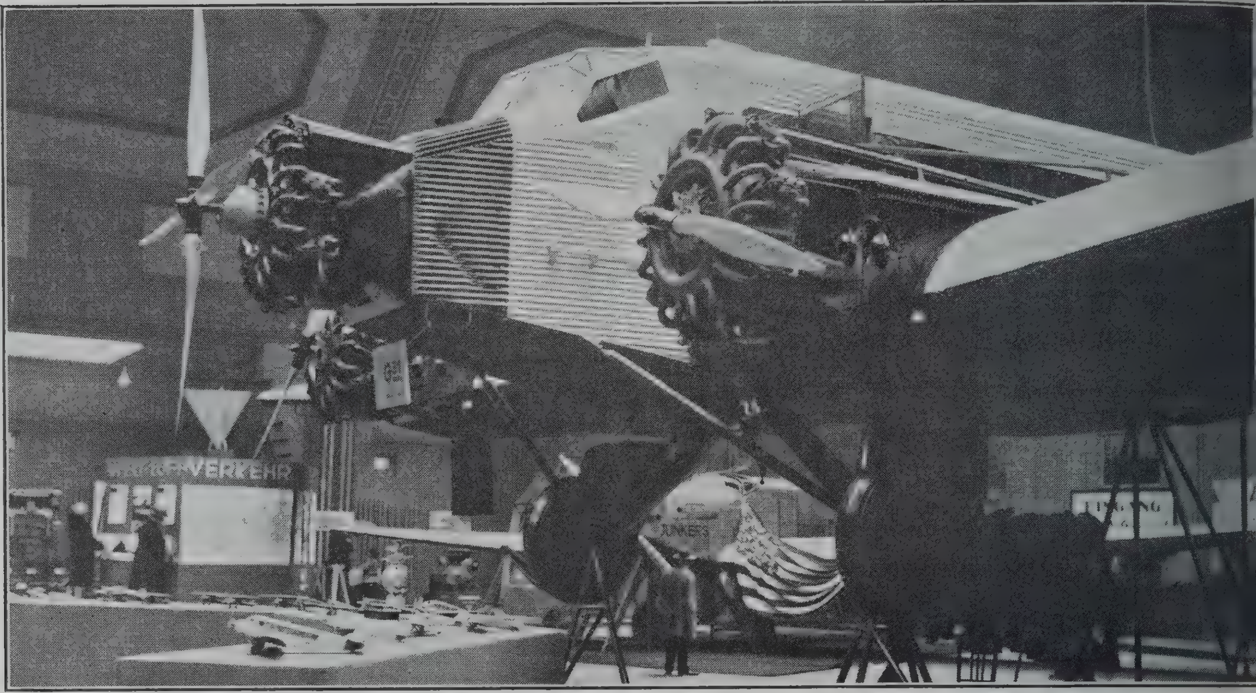


THE GIANT JUNKERS.—The G.31,—with three Bristol Jupiter engines,—one of the popular attractions of the Show. On the counter below are models of all the Junkers types yet produced. The Bremen is behind.

The S.C.II is a two-seat training biplane with a B.M.W. VoN (330 h.p.) with wooden wings forming a single bay on each side, with N struts.

The undercarriage is narrow and clumsy. It has five steel-tube struts forming inverted pyramids connected by a horizontal triangle of three tubes connecting to a split horizontal axle. All this edifice is for the purpose of holding two thick vertical legs, each consisting of three tubes with a mass of rubber springing. The undercarriage alone must cost the machine 10 miles an hour, and to make it worse there is an enormous radiator hung under the nose of the machine.

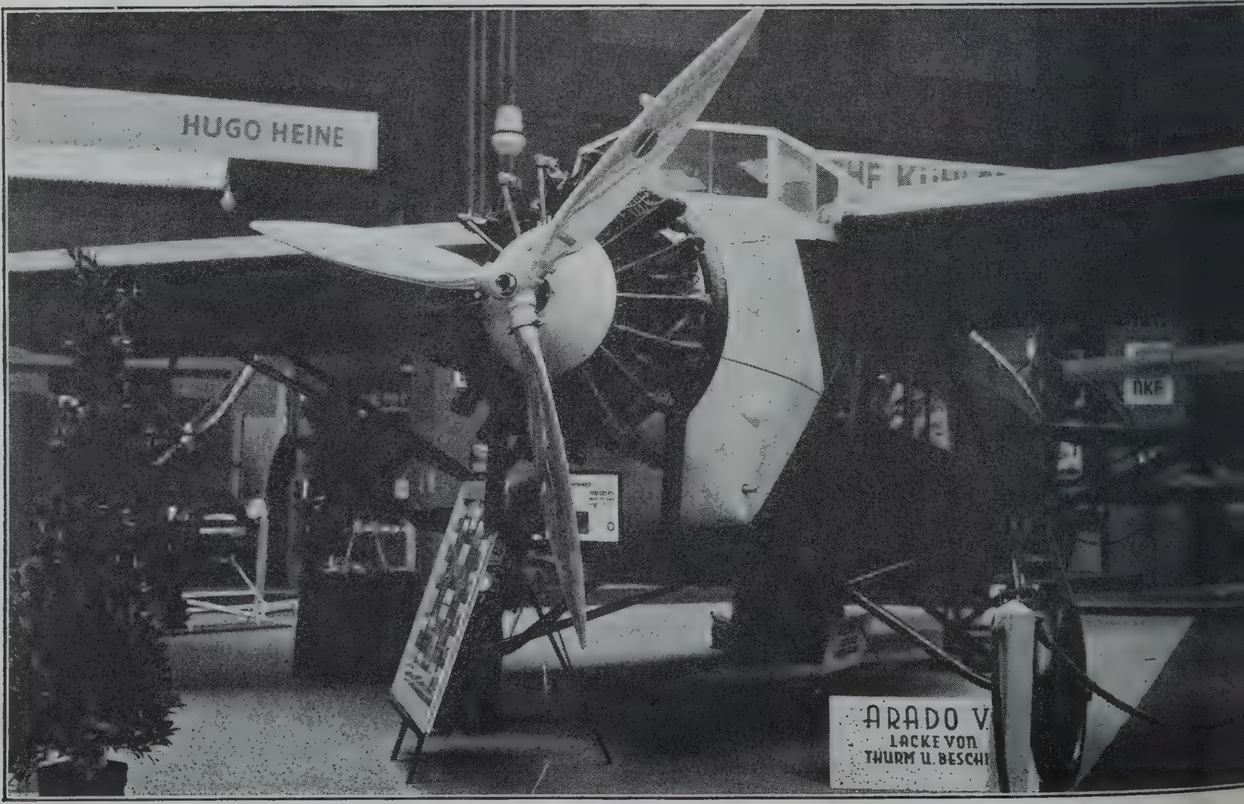
The V.I. is a cabin monoplane with a thin semi-cantilever wing and a B.M.W. Hornet engine. The cabin holds 4 passengers and the pilot sits up in the nose.

JUNKERS FLUGZEUGWERKE A.G.,
Dessau.

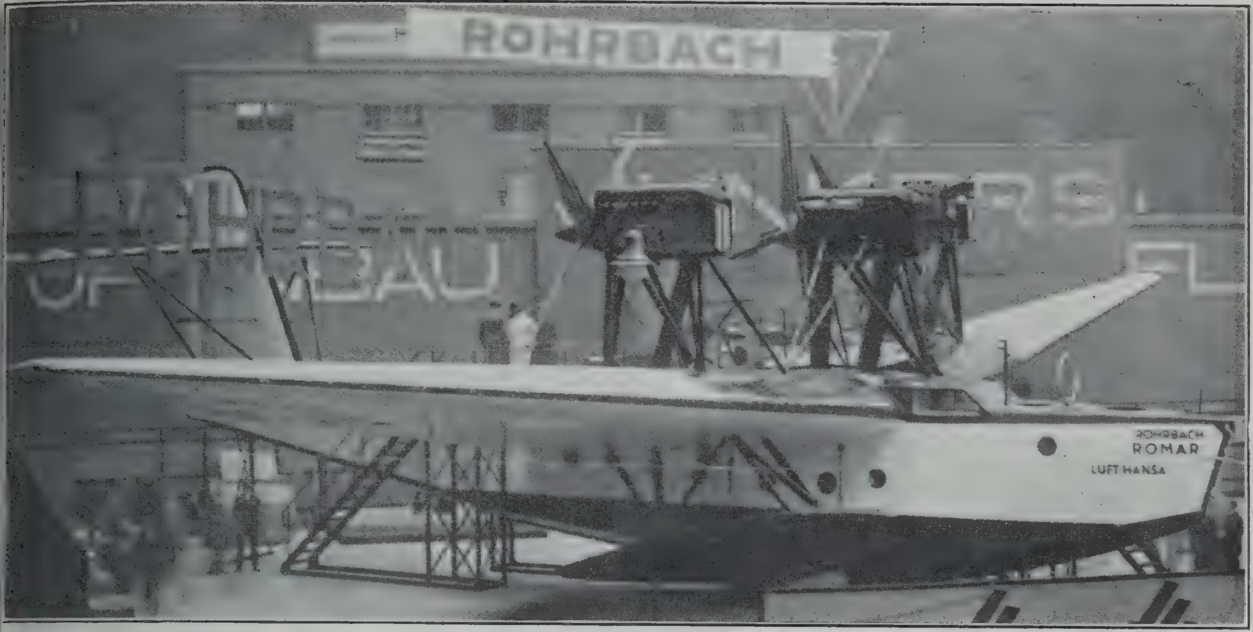
The great Junkers firm shows three interesting machines of types already well known to readers of THE AEROPLAN
The one which attracts the public most is the *Bremen*, D.11
which is the first and so far the only machine to fly t
Atlantic from East to West. The machine has been allow
to retain all the dirt which was acquired in the retu
journey by ship and road and rail. The result is a trav
stained appearance which is not usual in aircraft, even wh
they have crossed the Atlantic.

There is an F.13, the D.1, a standard-type single-engin
machine used on the Berlin—Breslau service, as an examp
of the type used for the German interior air-lines.

And there is a G.31 to demonstrate the big three-engin
type which carries 14 passengers. Steps have been arrang
so that the public can walk up and look inside the machin
and walk down the other side. At about 3 o'clock in t
afternoon on Wednesday, an ordinary working day, the
were queues 150 ft. long apiece, waiting to inspect ea
machine.



A GERMAN CABIN MONOPLANE.—The Arado VI with an airscrew with adjustable pitch.



THE BIGGEST FLYING-BOAT.—The great Rohrbach Romar, with three B.M.W. engines.

e Junkers area,—it is too huge to be called a stand,— ides a vast array of benches, shelves and stands, most tically designed, showing the component parts of the ers machines. There is a whole skeleton wing show- the 9-tube spar arrangement and the girder construction. re is a complete fuselage without wings, and any amount amples of details. Also there is a long bench on which 16 perfect scale models of various Junkers types which e are worth half an hour's study.

Rohrbach Metall-Flugzeugbau G.m.b.H.,
Friedrich-Strasse 203, Berlin, S.W.68.

e Rohrbach Romar takes up all of a space which would f house a respectable exhibition of any ordinary in- rial product. This is a colossal flying-boat with three .W. engines, giving a total of 1,650/2,160 h.p. The mmodation provides for two pilots and 12 passengers. e figures of the machine are interesting :—Span 36-9 res, Length 22 metres, Wing area 170 sq.m., Weight empty 9,900 kgs., Useful weight 9,100 kgs., Total weight 19,000 kgs.

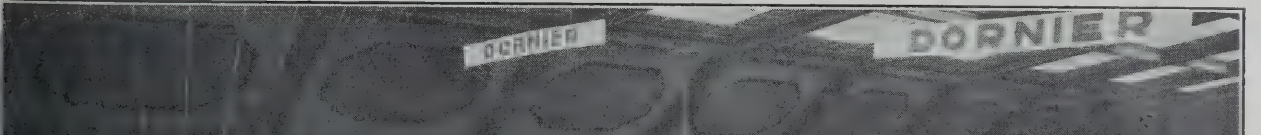
The speed is given at 208 km.p.hr. and the range at 4,000 km. These figures have been checked at the Government establishment at Travemunde.

In the area covered by the machine are quantities of parts demonstrating the Rohrbach method of construction and there is a skeleton tail-plane which itself would be big enough for the complete wing of an ordinary large aeroplane.

Dornier Metallbauten G.m.b.H.,
Friedrichshafen.

Herr Dornier shows a Super-Wal, with four Bristol Jupiter engines arranged two in tandem on each side of the hull. This particular machine is known as the *Blauwal,* and has been built for the Luft Hansa service in the Baltic. In every way it is of the typical Dornier design and construction.

In this area is a bench with 16 beautiful scale models showing the Dornier types produced from Herr Dornier's



TWO OF THE GIANTS.—The Dornier "Blauwal" (four Bristol Jupiters), with the Rohrbach Romar in the background, and the show-case of Dornier models on the left.

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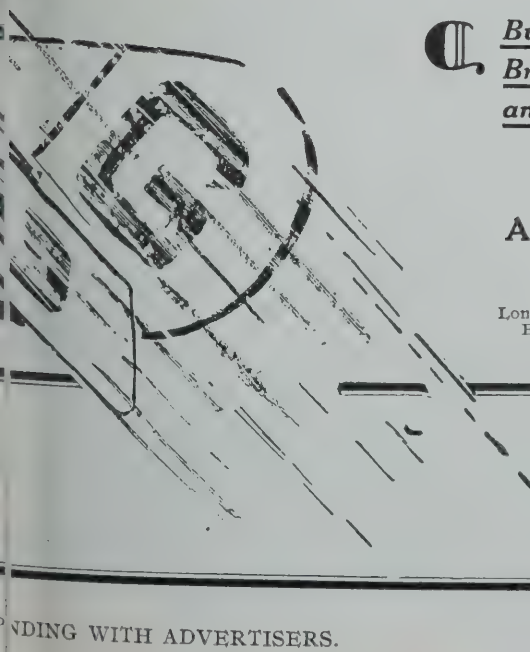

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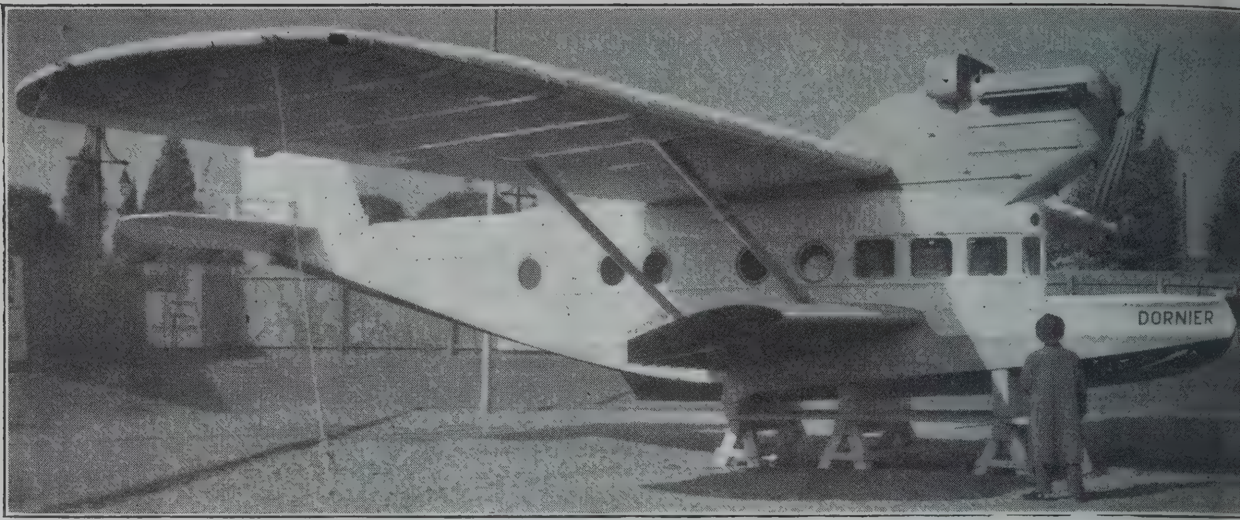


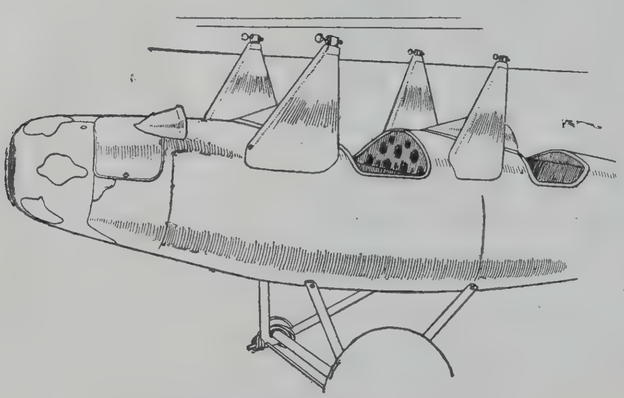
AN OUT-OF-DOOR EXHIBIT.—The latest Dornier Delphin in the grounds outside the Show.

earliest days as a designer. They are all ingenious and they vary between the most beautiful and the most hideous aeroplanes one has seen.

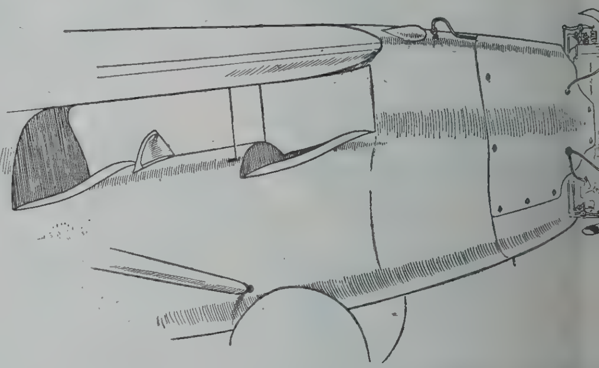
Perhaps the most interesting is a model for a high-speed seaplane of 1,000 h.p. with two engines in tandem, in the typical Dornier manner. The pilot sits in a hole between the engines, the wings being attached to the engine-cradle. The floats are prolonged aft and turned up at the ends to carry the tail. We may see something like it at the Schneider Trophy Contest next year.

ESPENBLAUB FLUGZEUGBAU,
Dusseldorf.

The Espenlaub 14 is a little two-seater monoplane with a thick cantilever wing perched up on four vertical struts.



The Espenlaub strut arrangement.



The seating arrangement of the Müller monoplane

The wing is big enough and thick enough for a passenger-carrying Fokker. The designer claims that it can climb to 1,000 metres in six minutes with its little six-cylinder engine. The price is given as M.6,800—(£340).

The whole thing is built of ply-wood in a very amateurish manner. The wood is buckled and dented and bulge every direction. So one cannot see why anyone should it at any price. All the same it probably flies.

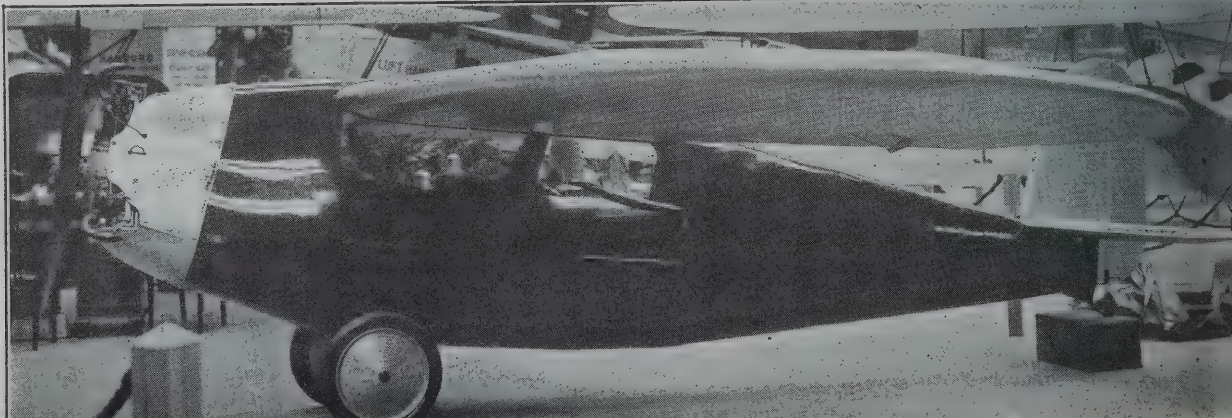
GEBR. MÜLLER FLUGZEUGBAU,
Griesheim b/Darmstadt.

Here is the G.M.G.II built by Gebr. Müller of Gries b/D. This is a two-seat tandem monoplane with a b cantilever wing. The whole lay-out of the machine is like the old A.N.E.C. or the Beardmore Weebee. fuselage is practically on the ground, with the wheels on two short struts and the wing flat on the top so the pilot and passenger have to crawl in under it.

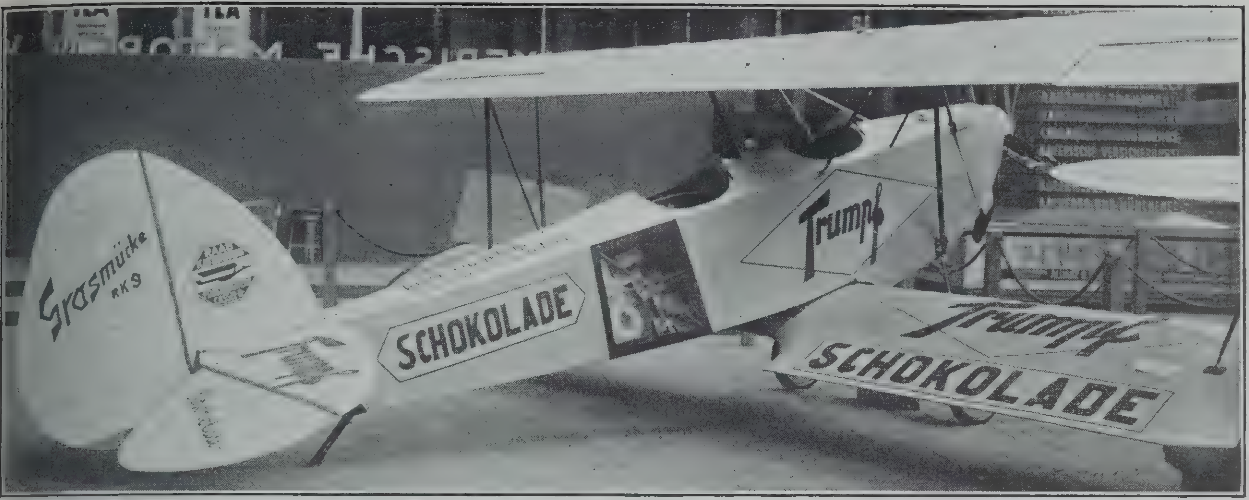
The machine shown has a three-cylinder Anzani e but the catalogue says that it is sold with a 40 Statax. It is interesting but not particularly attractiv

RAAB-KATZENSTEIN FLUGZEUGWERKE G.M.B.H.,
Cassel.

The Grasmücke, R.K.9, is a sort of half cantilever bi That is to say the upper plane is a cantilever carried steel-tube centre-section and takes the load of the plane through N struts without any wire bracing.

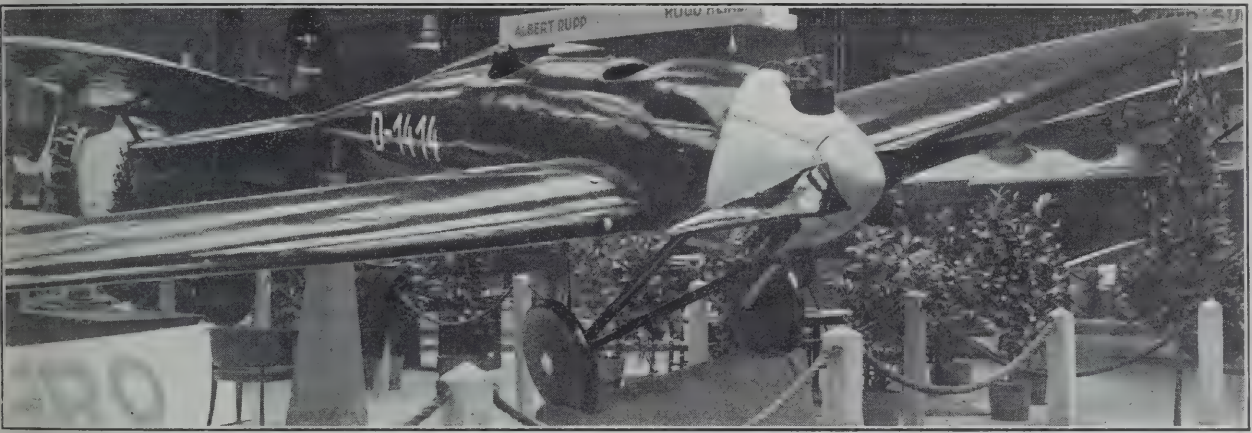


A VERY LIGHT MONOPLANE.—The little Müller two-seater.



SWEET ADVERTISEMENT.—The Raab-Katzenstein "Grasmucke," advertising a popular chocolate.

'he undercarriage is of a type which is anything between and 15 years old, with a straight cross-axle and a lot of necessary steel tube struts. It has a three-cylinder engine some modest kind which does not declare itself. The ole machine is crude, but it probably flies all right.

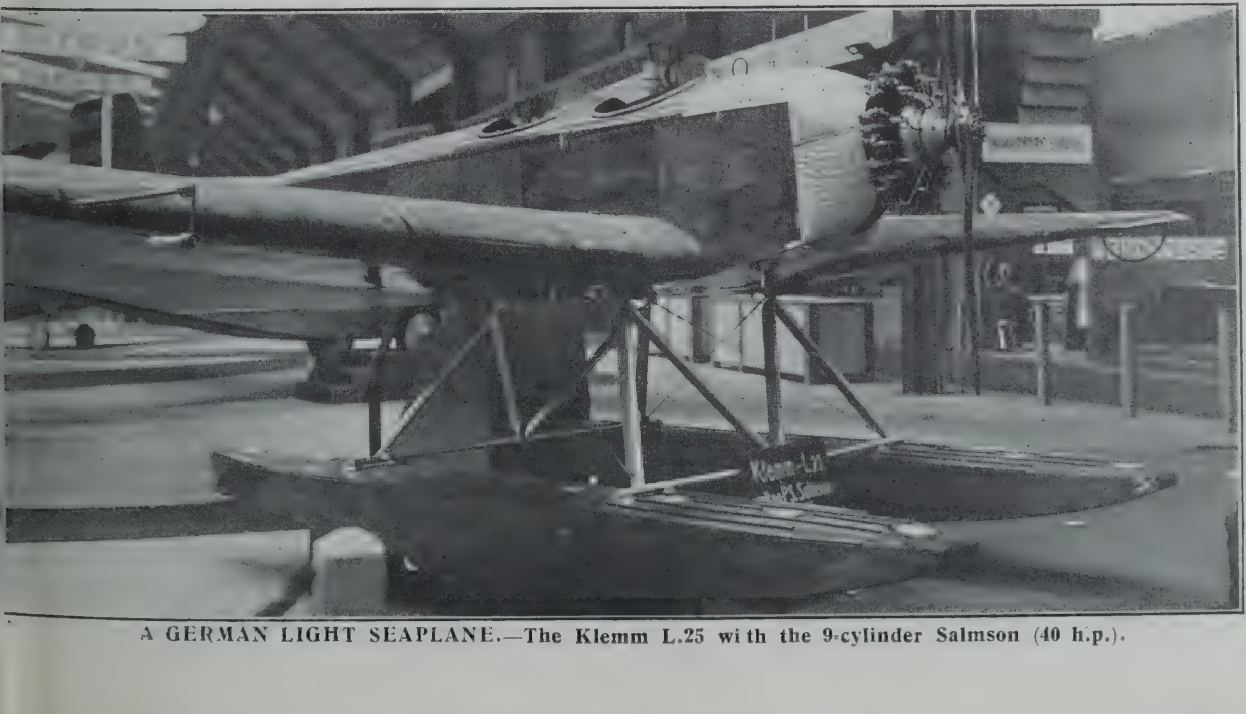


IN MEMORIAM.—The "Sausewind," a high-speed two-seater designed and built by the late Herr Bâumer, one of Germany's best pilots, killed early this year in an accident to a machine of another make.

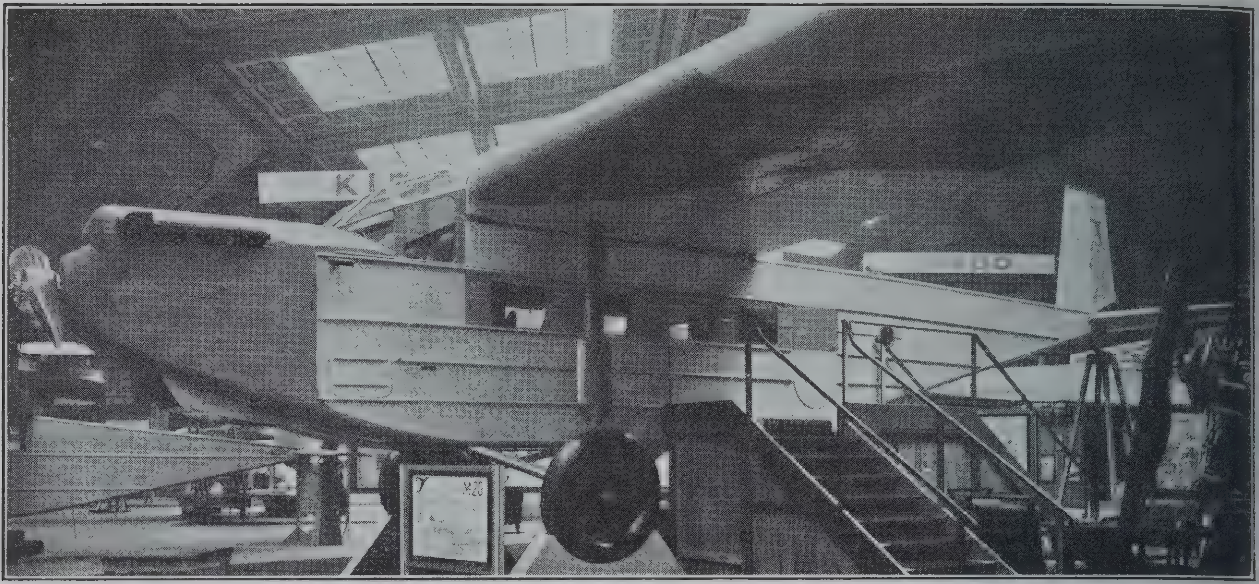
'he particular example in the show is painted aggressively black and yellow to advertise Trumpf Schokolade. One es that the chocolate is better suited to a refined taste n is the machine.

'he Pelikan, R.K.2a, is another two-seater biplane with a cantilever top wing supporting the lower plane through N struts. It has a 7-cylinder Siemens engine. There seems to be nothing particular to recommend it.

The Schwalbe, R.K.1c, is another two-seater on similar lines with a 9-cylinder Siemens engine. It is the type used by Herr Fieseler in his aerobatic performances. It is good and strong as he has proved, but it has a comparatively poor performance and is quite crude in design and rough in finish. The chief virtue of all these R.K. machines seems to be that they are strong and are thoroughly controllable.



A GERMAN LIGHT SEAPLANE.—The Klemm L.25 with the 9-cylinder Salmson (40 h.p.).



A GERMAN PASSENGER-CARRIER.—The big Messerschmidt M.20.

Bäumer Aero G.m.b.H.,
Hamburg-Fuhlsbüttel.

Here there is a Bäumer two-seater biplane nicely made and of very ordinary design, apparently entirely of metal with fabric covering The wings are of the ordinary two-bay type with duralumin struts rivetted down the trailing edge and braced with stream-line wires. The engine is a five-cylinder Siemens. The undercarriage is a neat example of the simple split-axle type.

On this stand is the Sausewind designed and built by Herr Bäumer for the Rundflug of 1925 and somewhat improved since then. In fact one believes that he was still developing the type when he was killed on a machine of another make. The Sausewind is a simple cantilever two-seater monoplane with a three-cylinder engine and the simplest possible undercarriage with three tubes in pyramid form for each wheel. The machine is beautifully stream-lined all over and quite well finished, and its bright scarlet enamel adds to its finished appearance.

Leichtflugzeugbau Klemm G.m.b.H.,
Sindelfingen.

The L.25 is the well known low-wing cantilever monoplane which won the French competition at Orly and has done so much good flying all over Europe. The example shown has a two-cylinder Mercédès Daimler engine but it is also sold with the 9-cylinder Salmson engine.

There is little difference in appearance between this machine and those which were seen at Croydon a year or more ago, and those which flew at Orly. Actually the construction of the fuselage has been improved and there is more room in it. Also the wings are some 5 cms. thicker, which apart from giving them extra strength, gives t machine a somewhat better performance.

On the stand there is also a W.L.251. which is the sa machine on floats.

Bayerischen Flugzeugwerke A.G.,
Augsburg.

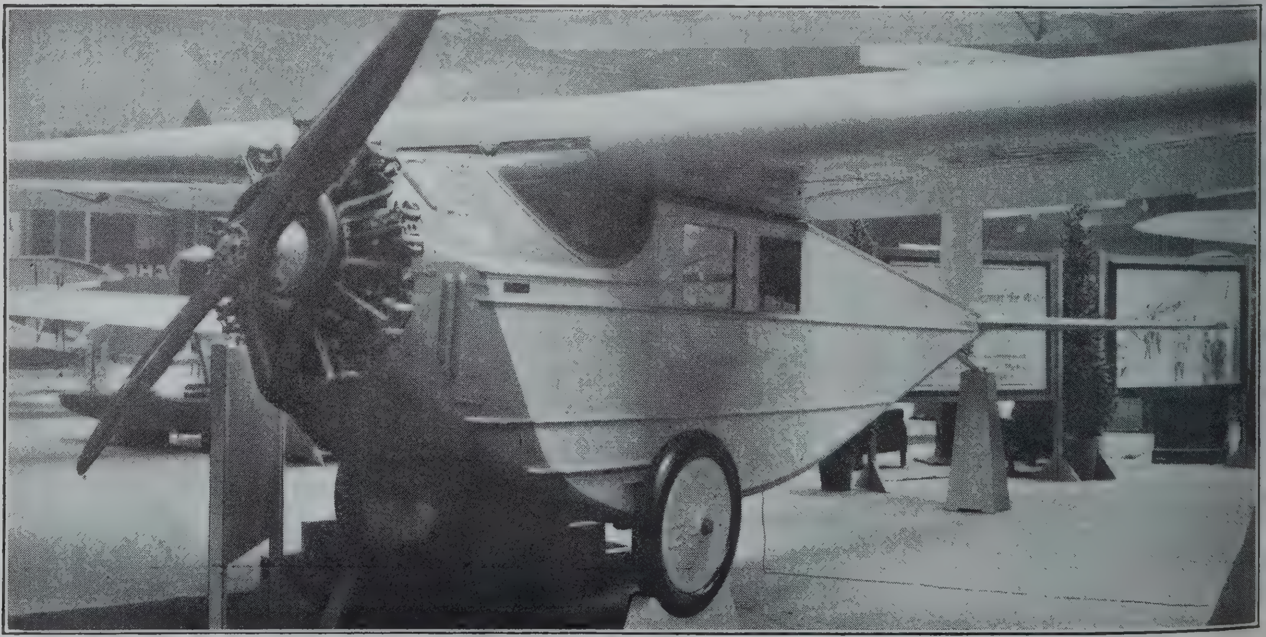
This firm, commonly known as the B.F.W., is a combin tion of Herr Udet, the great fighting pilot, artist, a humorist, with Herr Messerschmidt, the glider designer.

The M.18 is a cabin monoplane of rather tubby appea ance with a 9-cylinder Siemens engine (108/125 h.p.). carries a pilot and four passengers. The wing is an all-met cantilever. The weight of the machine empty is 650 kg and the useful load 550 kgs. (total 1,200 kgs.). The t speed is given as 140 k.p.h. and the cruising speed 120 k.p.h.

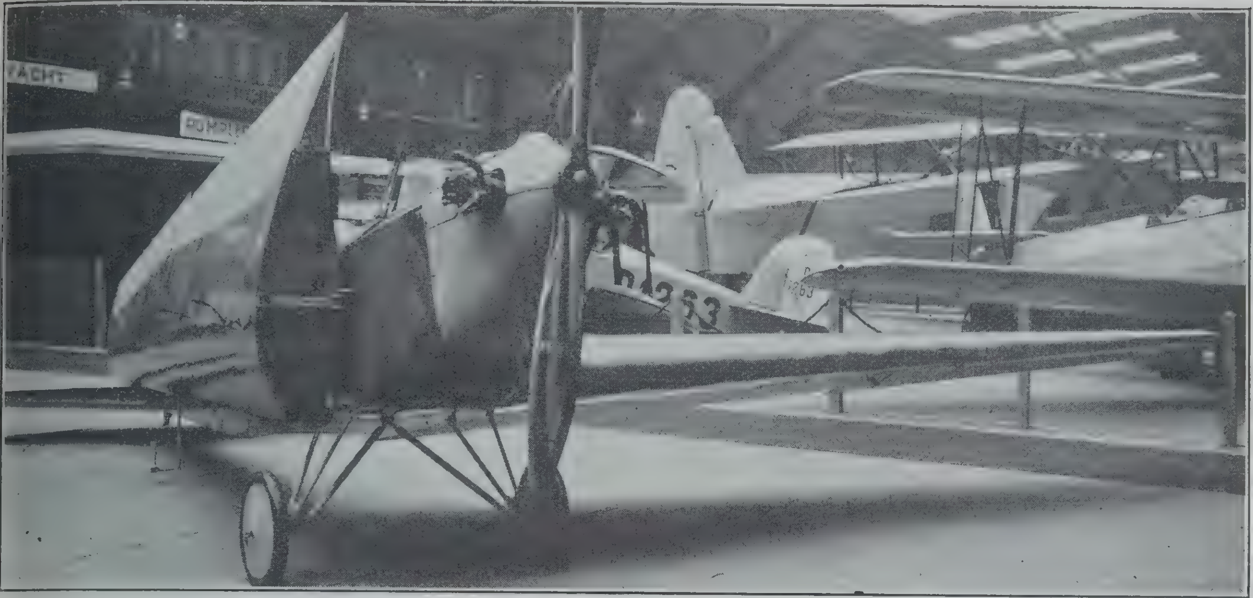
This strikes one as being too low to be useful in a kind of strong wind. If the figures had been miles inste of kgs. they would have been worth while.

The M.20 is another cantilever monoplane with a qu simple undercarriage, consisting of two hinged horizont struts and a vertical sprung strut to the butt of the win The engine is a B.M.W.VIa of 400/600 h.p. The cab carries 8 or 10 passengers with two pilots up in the nos The weight of the machine is 2,400 kgs. and the usef weight 2,100 kgs. The top speed is given as 175 k.p.h. a the cruising speed as 154 k.p.h., which is a little mo useful than that of the M.18.

The M.21 is a very ordinary braced biplane for scho work to carry pilot and pupil. It may be had either wi the Siemens 84/96 h.p. engine or the 108/125 h.p. typ

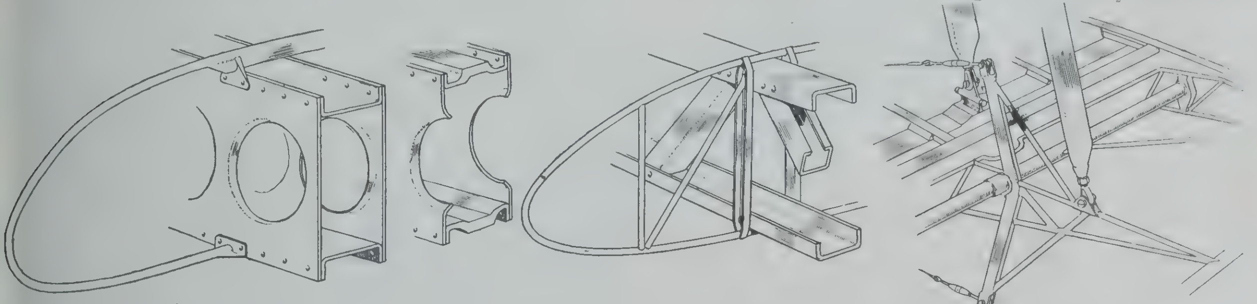


A GERMAN CABIN MONOPLANE.—The Messerschmidt M.18., with all-metal fuselage, and a Siemens engine.



A GERMAN LIGHT MONOPLANE.—The Messerschmidt. M.23. with folding wings.

he M.23 is a light monoplane, evidently derived from rr Messerschmitt's gliders. It may be had either with a h.p. Mercédès-Benz engine or a 34 h.p. A.B.C. Scorpion. e weight, empty, is given as 200 kgs. and the useful load 200 kgs. The speed is stated to be 135 km.p.hr. The chine is quite well built and in its general lines strongly embles the Klemm-Daimler.



ALBATROS DETAILS.—Spar design and rib attachments and aileron controls.

Albatros Flugzeugwerke G.m.b.H.,
Berlin-Johannisthal.

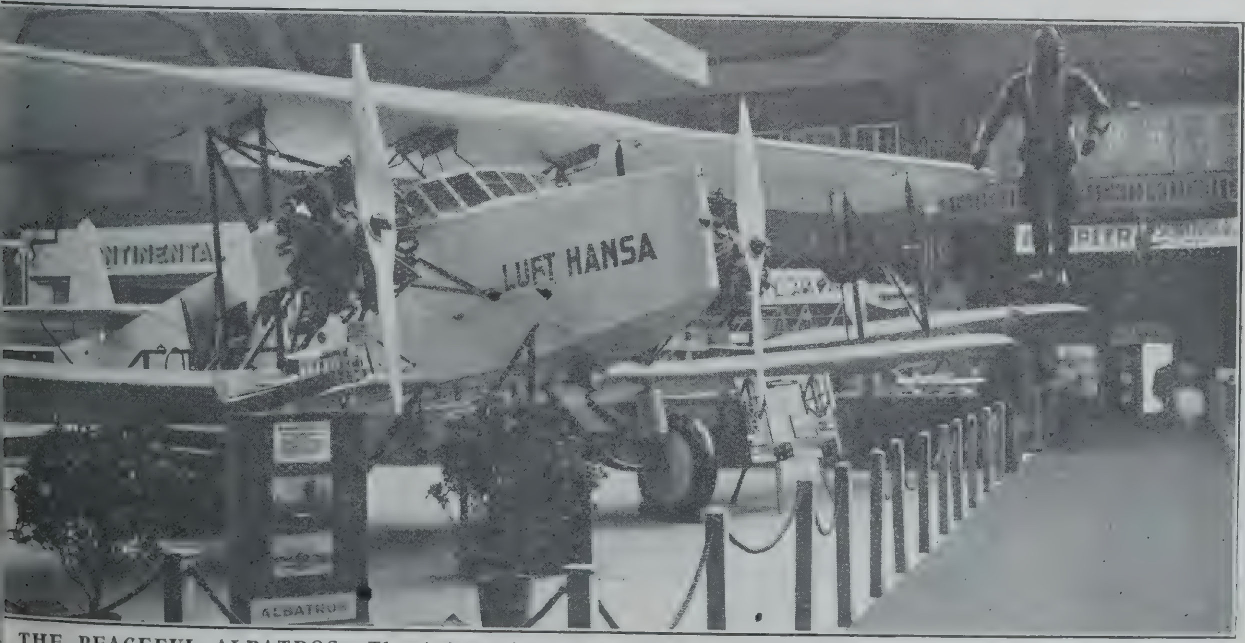
he L.68c, Albatros, is a braced biplane of normal type with truts. It is intended for school work. It has a Siemens h.p. engine.

he L.75a, Ass, is a single-bay biplane with wooden wings, truts and a split undercarriage for quick travel. It has a B.M.W.Va engine of 320/360 h.p., and a speed of 210 km.p.hr., which is reasonable.

The L.73a is a very fine example of a twin-engined passenger-carrier. It is a big 10-seater biplane built for the Luft Hansa, and is so fitted that it can be used as a sleeping-car on a night-flying line.

It has two Bristol Jupiter engines built by the Siemens people. It has thick wings, which form a single bay on each side from the engine-mounting outwards. The undercarriage is of the spit type originated by the Avro firm. The speed of the machine is given as 175 km.p.hr. (say 105 m.p.hr.), which seems useful, at any rate for night flying.

[Note :—The German engines will be illustrated and described in a separate article next week.—C. G. G.]



THE PEACEFUL ALBATROS.—The twin-engined sleeping-car. War-time pilots who only knew the Albatros from the front end will be interested in this peaceful development of one of Germany's best aeroplanes, and will wish (retrospectively) that they had had parachutes like the suspended gentleman on the right.

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Moth is the machine that is creating "air-mindedness" in all corners of the globe . . . the machine that the "man in the street" can understand and fly himself, with a feeling of as much security as his car will give him . . *but with infinitely more comfort and enjoyment.*

Numerous Flying Schools, in both Hemispheres, have adopted the Moth as their standard machine and it is the chosen training machine of all the great Dominions and many of the Foreign Air Forces. The excellence of Moth all-round performance accounts for this wide appreciation and it has proved itself, time and again, "the Best Light Aeroplane in the World."

For full particulars of the Gipsy Moth write :
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Stag Lane Aerodrome, Edgware, Middlesex.
Telegrams : Havilland, 'Phone, Colindale. Telephone : Colindale 6160—6163
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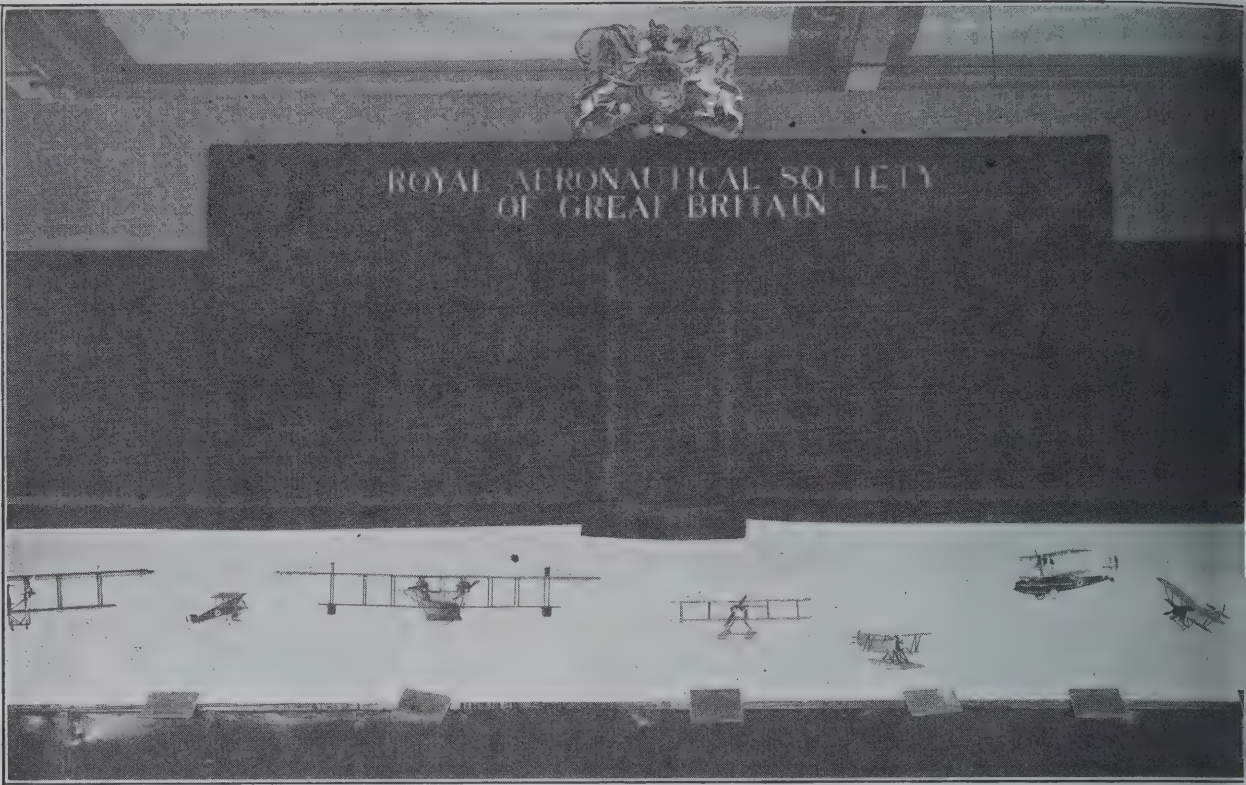


THE OLD FIRM.—A section of the illuminated display of models of historical British aircraft, arranged for The Royal Aeronautical Society, the oldest aeronautical organisation in the World, by Mr. Hodgson and Major Villiers. The whole of the exhibit is about three times as long as this, and attracts much attention. With the cases of historic documents and pictures, in the same gallery, lent by the R.Ae.S., and Mr. Hodgson and his friends, this forms one of the most valuable and educative sections of the Show.

The English Section.

Though the English section is small, it is good, and our German friends are generous in their praise of our design, workmanship and finish.

The De Havilland Aircraft Co. Ltd.,
Stag Lane Aerodrome, Edgware, Middlesex.

The De Havilland people show one Moth with slotted wings. It is a beautiful example of show finish, and certainly attracts as much attention as anything in the whole exhibition. The name of the Moth seems as familiar in Germany as in England. In fact the word Moth, or Mötte, appears to be the general term for light aeroplanes, or at any rate light biplanes, in most parts of the country.

With it are shown a pair of skis for winter flying and a pair of floats built by Short Bros. Also on the stand is a Williamson Eagle camera which excites much interest. There are also Fairey-Reed air-screws and a wonderful array of aerodromic equipment, such as the De Havilland teleph for instructors, De Havilland wheel-chocks, etc.

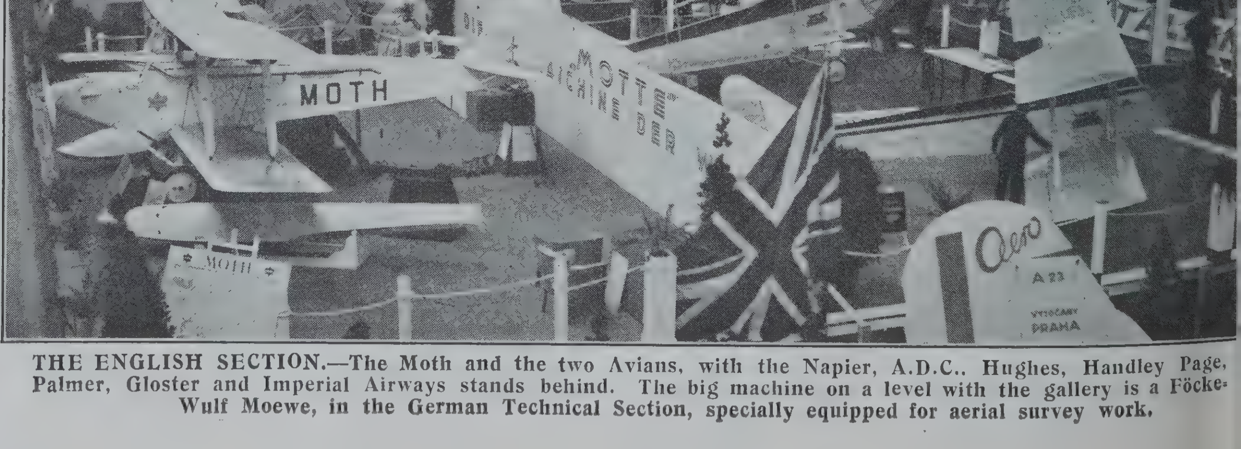
The Blackburn Aeroplane and Motor Co. Ltd.
Olympia, Leeds.

The Blackburn Company show a Bluebird with an strong Siddeley Genet engine. Also there is a Blackburn to show how the machine can be turned into a seaplane.

Of considerable interest also on this stand is a model three-engined monoplane boat, which should be a wo successor to the Iris.

Armstrong Siddeley Motors Ltd.,
Coventry.

Here are shown the Jaguar, Mongoose, Lynx and G engines. They are beautifully got up for the show, though a show finish cannot add in any way to their reputation for efficiency, it certainly does attract public a tion.



THE ENGLISH SECTION.—The Moth and the two Avians, with the Napier, A.D.C., Hughes, Handley Page, Palmer, Gloster and Imperial Airways stands behind. The big machine on a level with the gallery is a Föcke-Wulf Moewe, in the German Technical Section, specially equipped for aerial survey work.

TILL PIONEERING.—The two Avians (Genet and Cirrus) among the first four British aircraft to be exhibited in Germany.

D. Napier and Son Ltd.,

Acton, W.3.

e is shown a Lion engine of the series XI. This is a cation of the type which was used in winning the ider Trophy last year. It is, one believes, the first hat a Lion of this type has been on show, and all sorts ign potentates and powers have been to visit it.

Rolls-Royce Ltd.,

14-15, Conduit Street, London, W.1.

e is a Rolls-Royce Falcon of the latest type,—with ng and braiding against interference with short-wave ss and all other improvements. It looks beautiful and s much attention.

A.D.C. Aircraft Ltd.,

Regent House, Kingsway, London, W.C.2.

e we have an A.D.C. Nimbus in the middle of the stand n one side of it a Cirrus Mk. II (75/80 h.p.) and on her a Cirrus Mk. III (85/95 h.p.). Behind are some cups which excited so much admiration that a humorous n exhibitor, having admired them, went away and back some time afterwards to lament that he had nable to hire in Berlin similar cups to make his own equally attractive.

Bristol.

Bristol stand, owing to a rather late decision about g to Berlin, was at first cast into an outer darkness it shared the interest of Herren and Damen. By Wed- the diplomacy of Major Darwin and Capt. Bartlett had ed a piece of Belgium, and the Bristol Co. figured on gn-board as a self-determined nation.

e, well in the light, a supercharged Jupiter VII, a r VIa, and a Titan attract the attention which they e as the most manufactured engines in the World.

Handley Page Ltd.,

Cricklewood, London, N.W.2.

e is shown the wing of a light aeroplane fitted with mous Handley Page slot and placed so that all and may pull it about to see how it works.

re is also a model of a monoplane fixed in front of an c fan to demonstrate how the slots work automatically. monoplane, being of the thick-winged type, seems to some argument, because the advocates of thick wings rgued not only that Handley Page slots are unneces- n thick wings, but that they will not work when fitted h wings,—and the model shows that they do work.

Henry Hughes and Son Ltd.,

59, Fenchurch Street, London, E.C.3.

famous firm of Hughes show a vast assortment of navi- instruments. They have 16 varieties of compasses They have a periscope wind-gauge bearing plate, s course-laying devices, and numerous other instru- which evidently interest German air-navigators con- ly.

Imperial Airways Ltd.,

ys House, Charles Street, Haymarket, London, S.W.1.

one and only air-line has a stand in the hall on they give a display of posters and various leaflets and gliders for distribution. They also have an excellent model of a Short Calcutta flying-boat.

he exit from the hall is a full-sized cabin of an Arm- "Argosy" with a lay figure of a "Silver Wing" d. As the seats are empty one is left in doubt as to er this represents the Winter service or whether the gers have formed the same opinion of the chairs which lds oneself.

Palmer Tyre Ltd.,

100, Cannon Street, London, E.C.4.

The famous universal providers of aeroplane tyres show a variety of their well-known tyres and wheels. But the most interesting thing on the stand is the display, for the first time, of the new Palmer brakes.

The Palmer brake is one of those delightfully simple inventions which can only be described as silly. When one sees it one wants to retire into a corner and kick oneself for not having thought of it before. It consists, in essence, of an ordinary brake-drum with, inside it, a ring carrying what amounts to the tube of a tyre. On what may be called the "tread" of this tube is a series of pads of some brake-material. When the tube is inflated these pads are pushed out into contact with the brake-drum. The ring has fingers projecting between the pads to prevent the tube from being dragged round by the revolving drum. And that is that.

The inflation of the tube can be done in a variety of ways, all equally simple. So there you have a quite perfect pneumatic brake. There is no room in this report for a complete description of it, but it will be described and illustrated in detail in this paper as soon as possible.

C. C. Wakefield and Co. Ltd.,

Wakefield House, Cheapside, London, E.C.2.

The famous oil firm has quite a striking stand on which are displayed samples of Castrol and of the other Wakefield products, together with descriptive matter advertising

THE CROWN PRINCE AND ENGLAND.—The German Crown Prince discussing with Sq. Ldr. England, of Handley Page Ltd., the model of a slot-winged monoplane, amid an admiring crowd of German youths, who are at least as interested in the model as in the Prince.

VICKERS
(AVIATION) LIMITED

ACCESSORIES FOR AIRCRAFT.

Enquiries of Aircraft constructors and users are invited for the following specialities manufactured by Vickers (Aviation) Ltd. :

Vickers (Patent) Petrol Cocks (light pattern).

Vickers Petrol Pumps (hand-operated and windriven).

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Nous invitons MM. les constructeurs et acheteurs d'avions de communiquer avec nous au sujet des spécialités citées ci-après :

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Poulies Universelles et guide-cable "Vickers" pour charge légère.

Haubans fuselés et tirants étampés.

Colliers réglables de "Malleville" pour tuyauteries.

VICKERS HOUSE, BROADWAY, LONDON, S W 1.
Works - WEYBRIDGE, SURREY.

VICKERS
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ZUBEHÖR FÜR LUFTFAHRZEUGE.

Erbauer und Gebraucher von Luftfahrzeugen werden auf die folgenden Spezialfabrikate von VICKERS (AVIATION) LIMITED aufmerksam gemacht :

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Vickers Universal-Riemenscheiben und Schirme für leichte Belastung.

Profildrähte und Gesenk - Ankerstäbe.

"Malleville" verstellbare Rohrschellen.

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Rogamos que todos los constructores y compradores de aviones nos consulten para las especialidades siguientes :

Grifos de gasolina patentados "Vickers" (modelo ligero).

Bombas de gasolina "Vickers" (a mano y a molinete). Purificador de gasolina y otros accesorios para sistemas de gasolina, aceite y agua.

Lamparas de navegación "Vickers-Davis" (modelo ligero).

Equipo eléctrico de alumbra de bordo.

Registrador de vuelo "Vickers-Reid."

Radiadores de aceite "Vickers-Potts."

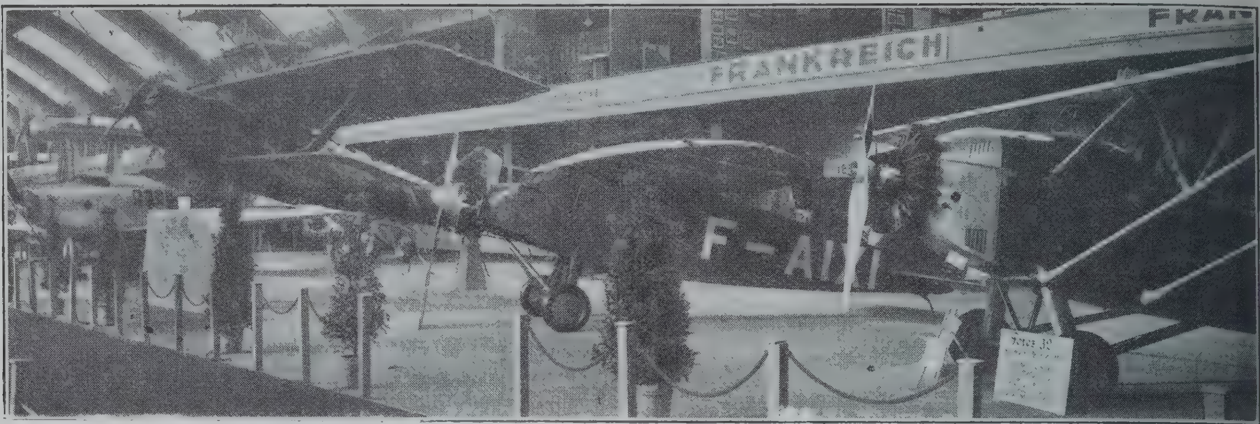
Sistemas de frenos oleo-neumaticos del tren y del soporte de cola.

Poleas y garruchos "Vickers" para carga ligera.

Cables perfilados y obenques extendidos.

Argollas arreglables "Malleville" para sistema de tubos.

VICKERS HOUSE, BROADWAY, LONDON, S.W.1.
Works : WEYBRIDGE, SURREY.



THE FRENCH EXHIBIT.—Left to right,—the new Blériot cabin-monoplane, the veteran Bréguêt, the new Nieuport cabin-monoplane, and the Potez biplane.

the various triumphs achieved with the aid of the Wakefield firm.

THE GLOSTER AIRCRAFT CO. LTD.,
Sunningend Works, Cheltenham.

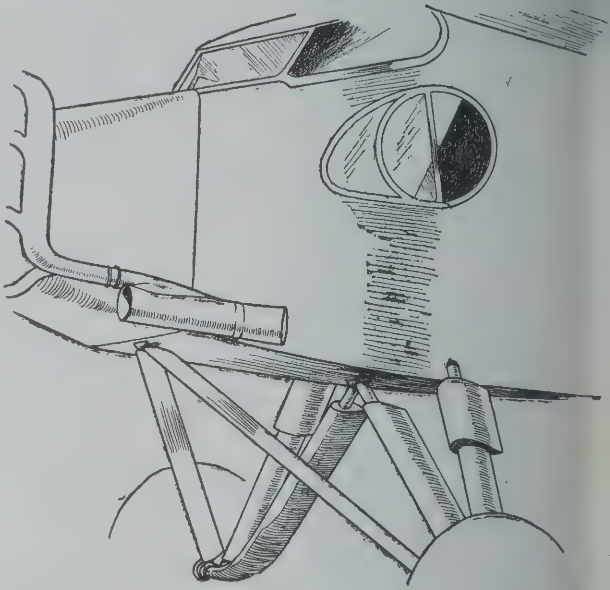
The Gloster people show, for the first time in public, the Hele-Shaw variable-pitch airscrew. This was described fairly fully in THE AEROPLANE quite recently. For the benefit of those who missed that description, one may say that the pitch of the screw is altered by a hydraulic gear which is fitted with a governor which alters the pitch of the screw under varying conditions of load, so that the engine is kept at a fixed rate of revolution.

The governor itself is under the control of the pilot, so that the rate of revolution can be varied at will. In the event of anything going wrong with the mechanism, either by accident or enemy action, the pitch of the screw returns to a position which gives the engine normal revolution.

Unfortunately the exhibit was not got into working order until late in the first week of the show, owing to the difficulties with the fitting up of the stands to which reference has been made in the introduction to this report.

A. V. ROE AND CO. LTD.,
Newton Heath, Manchester.

The Avro firm show two complete Avians, one with a Genet engine and one with a Cirrus. Both look very smart, with the orthodox Avro style of painting, one in red and white and the other in blue and white. Also the stand shows a number of artistically arranged placards on which the exploits of Avians are set forth in German.

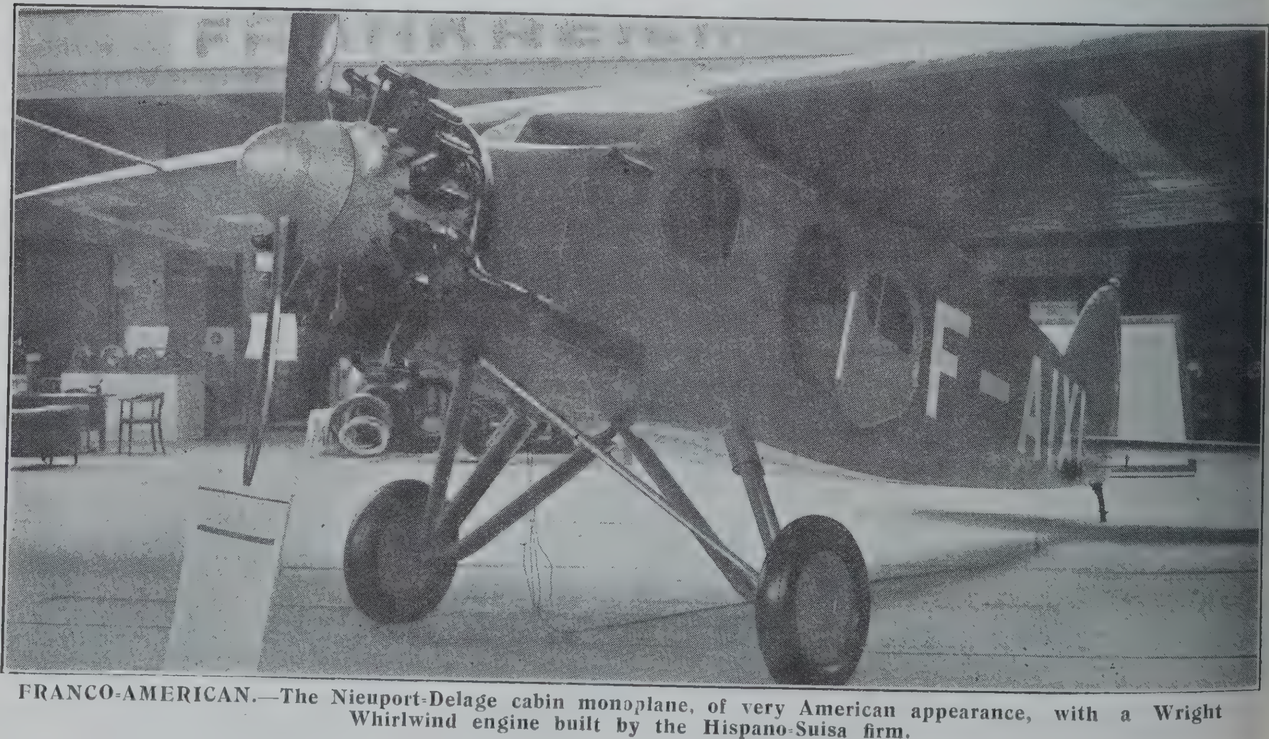


FRENCH DESIGN.—The undercarriage, cabin-lighting, and injector-exhaust arrangement of the Nieuport-Delage.

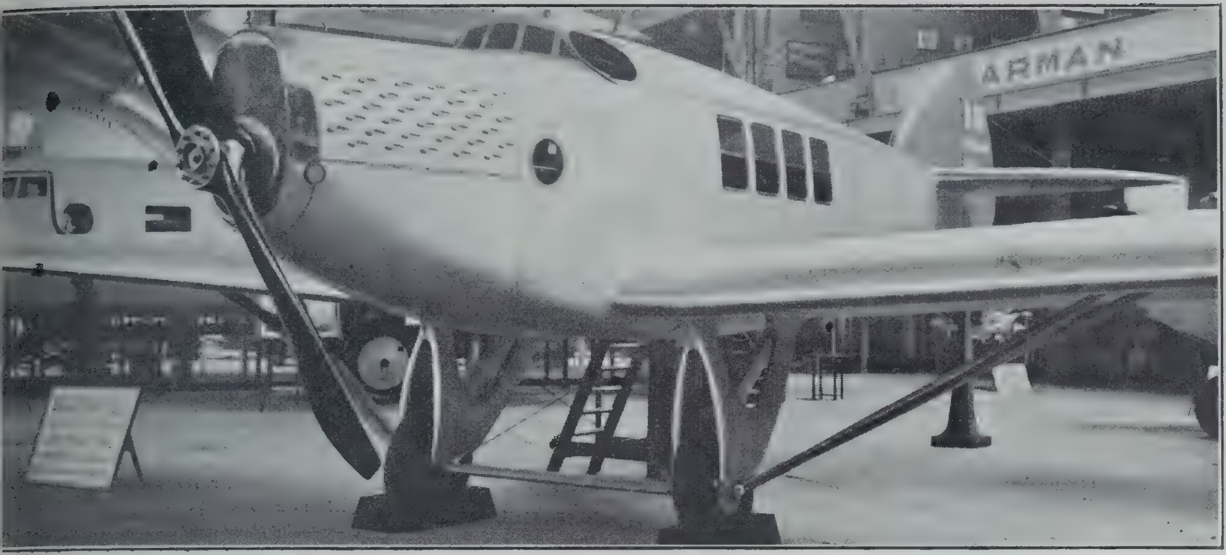
France.

The French exhibit is quite interesting and includes two machines which are distinctly new.

The Nieuport-Delage 640 is the latest product of this distinguished firm and is quite one of the best machines in the whole show. It is a cabin monoplane of distinctly American type with a full cantilever wing tapering gracefully in plan and front elevation, and it is interesting to note that the wing is bi-convex near the root. The tail and fin are also full cantilevers. So the front view of the machine is extremely



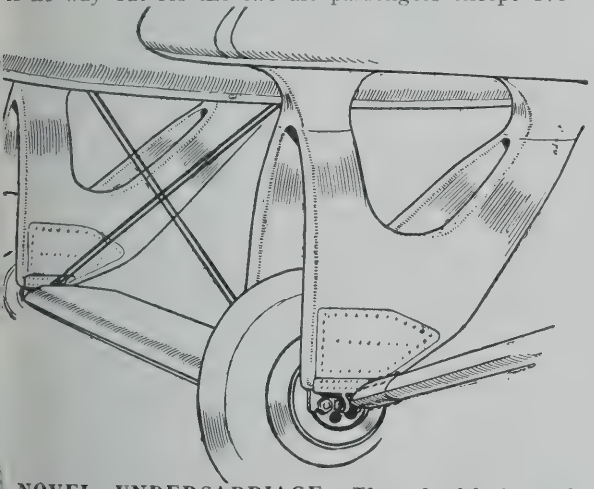
FRANCO-AMERICAN.—The Nieuport-Delage cabin monoplane, of very American appearance, with a Wright Whirlwind engine built by the Hispano-Suisa firm.



A NEW FRENCH DEVELOPMENT.—The Blériot low-wing cabin monoplane, with an Hispano-Suisa engine.

The cabin holds four passengers and there are seats wo pilots with dual controls, one of which can be put f action at the will of the first pilot (a distinctly good

: chief objections to the machine are that the cabin ac- odation is very cramped and the side door into the cabin 'y small, so that in the event of an accident the best ut for the passengers would be over the body of the d pilot, who has quite a large door behind him. Also is no way out for the two aft passengers except over the bodies of those in front. Furthermore the ventilation of the cabin seems inadequate.



NOVEL UNDERCARRIAGE.—The wheel-forks and sprung wheels of the Blériot monoplane.

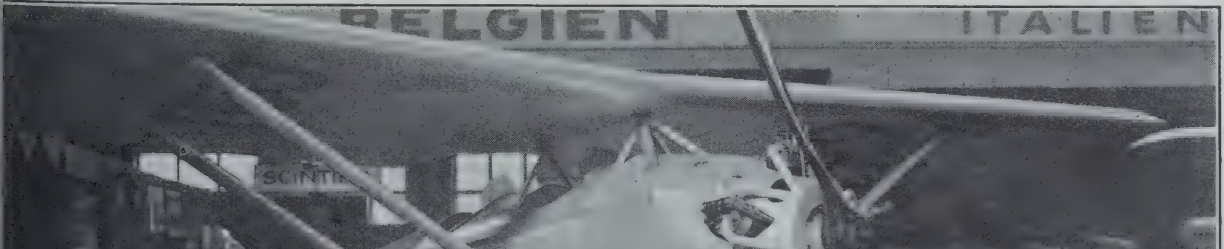
Apart from that the machine is very good indeed. With a Wright Whirlwind engine built by the Hispano-Suisa Company, the speed is given as 190 km.p.h. The price quoted by a very keen French attendant is Frs. 150,000, which seems impossibly low.

The Blériot 111 is another new machine. It is a braced low-wing monoplane, the wing of which is distinctly cantilever. The undercarriage is curious, the wheels being carried in forks like those of a bicycle, the said forks forming part of a rigid structure with the wings. The wheels themselves are of the internal-sprung type designed by the Blériot firm. The accommodation is for four passengers and two pilots with petrol for ten flying hours, which seems a pretty big load to put onto a 250 h.p. Hispano-Suiza engine. Nevertheless the whole design is so clean that the engine probably gets away with it.

As a contrast to these two machines there is shown the old Breguet on which Messrs. Costes and Le Brix flew across the South Atlantic, the whole of South and North America, and nearly all of Asia.

The fourth exhibit is the Farman F.100, a postal machine with a 230 h.p. Titan engine. It is a braced high-wing monoplane carrying four passengers and the pilot, and has already been described in the report of the Paris Aero Show. So has the Potez biplane, which is the fifth exhibit.

There is also shown in this area a mock-up of the body of the F.180, the big tandem-engined Farman air-liner which is known on paper as the "Flying Bar," though one has never heard of its flying, either with bar or without. It is of course simply an advertisement and no more a practical proposition than an aeroplane with a dancing floor. Drinks can be served in an aeroplane without a bar counter.

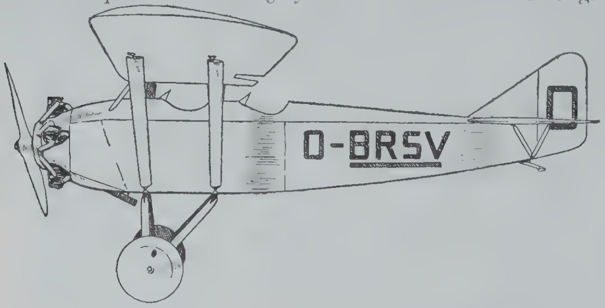


BELGIUM'S CONTRIBUTION.—The Stampe et Vertongen light monoplane, with Renard engine.

Whether because of the bar or not Farman appears in the sign-board as a separate nation ranking with "Frankreich" and "Italien," so the bar may have been working when the signs went up.

Belgium.

Stampe et Vertongen show the R.S.V. (having left out the terminal P). This is a neat little two-seater high-wing braced-monoplane with a 5-cylinder radial Renard engine of 100 h.p. and a perfectly plain cross-axle undercarriage. The whole effect is something like a Westland Widgeon, but not quite so well finished.



The Belgian Stampe et Vertongen in outline.

The Sabca firm show a tail-unit made in their own system of metal construction .

Czechoslovakia.

The Aero A.23 is a braced single-bay biplane with a Walter Jupiter engine 420 h.p. It carries seven passengers and two pilots, the pilots being seated high up behind the cabin, each with a little streamline hump behind him, which looks most comic when seen from behind. The speed is given as 183 km.p.hr.

A placard announces that machines of this type on the Czechoslovakian air-lines cover 2,600 kms. daily and have run for the past year with 97% regularity. The whole machine is a good solid piece of work and is a credit to its producers.

The Avia B.H.29 is a thick-wing single-bay braced biplane with N struts. It is a two-seater with a 9-cylinder Walter engine (120 h.p.), and has a speed of 150 km.p.hr. The fuselage, even on close inspection, appears to be covered with polished aluminium sheet, in which the rivets have somehow been concealed. Actually it is covered with plywood painted with aluminium and then varnished. This finish is very effective and is probably durable.

The Avia B.H.11 is a low-wing braced-monoplane with a Walter 60 h.p. engine. It is a quite pretty two-seater with a top speed of 160 km.p.hr. and a cruising speed of 135 km.p.hr. The fuselage has the same deceptive covering as the B.H.29.

The Letov S.18 is a braced biplane with a Walter 60 h.p. engine. Its speed is 160 km.p.hr. The pilot and passengers are seated in tandem in one cockpit, which seems convenient for a training machine.

The Letov S.316 is an all-metal single-bay braced biplane with a Hispano-Suisa engine (600 h.p.). It seems to be quite a useful two-seater fighter or general-purposes machine. With a Hispano of 450 h.p. its speed is 245 km.p.hr. with a 600 h.p. Hispano the machine must be about as go as anything on the market.

Italy.

The Italian exhibit is really one of the most amusing the show. Not only is it a comprehensive if small exhibiti of fighting machines in a show which is strictly limited civil aircraft, but every Italian machine flaunts on each si the fasces and axe which form the official badge of t Fascisti (it is in fact the official mark of all Italian w machines), thus providing an effective counter-blast to t sickle and hammer which is blatantly displayed over t Bolshevik stand, the other side of the gangway.

The Fiat C.R.20 is a very pretty single-seat fighter sho at the Paris Show two years ago. It has a Fiat A.20 engi (430 h.p.). Despite the machine-gun channels in the t of the cowling, it is described as a single-seat postal machi

The Fiat R.120 with a Fiat A.22 engine 570 h.p. is a brac high-wing monoplane, actually a 2-seat fighter. The swelli on the top of the fuselage which takes the gun-ring h been provided with a wind-shield to look civil. This is t type of machine on which His Excellency Balbo and h cortège of Italian officers flew to England last Summer, the famous occasion when they were met at our coast by o of our crack pursuit squadrons as a courtesy escort, and fl so fast that they arrived at the aerodrome allotted to th near London before the escort could overtake them.

The S.59-bis is a Savoia flying-boat with a single Iso Asso engine (500 h.p.). This machine actually flew dire from Rome to Berlin. The forward cockpit is covered wi a piece of wood which is held in place by the nuts and bo which would normally secure the gun-ring.

The Breda A.7 is a 2-seat fighter with an Isotta Asso (5 h.p.). It is a high-wing braced-monoplane with a slab-sid fuselage and an equally slab-sided undercarriage, the us struts being covered by metal trousers. The whole machi looks workmanlike enough, but the finish is very un-Italia This machine also flew from Rome to Berlin.

The only truly civilian machine in this area is the Mac monoplane which flew in the Schneider Trophy Contest a subsequently captured the World's Speed Record.

Russia.

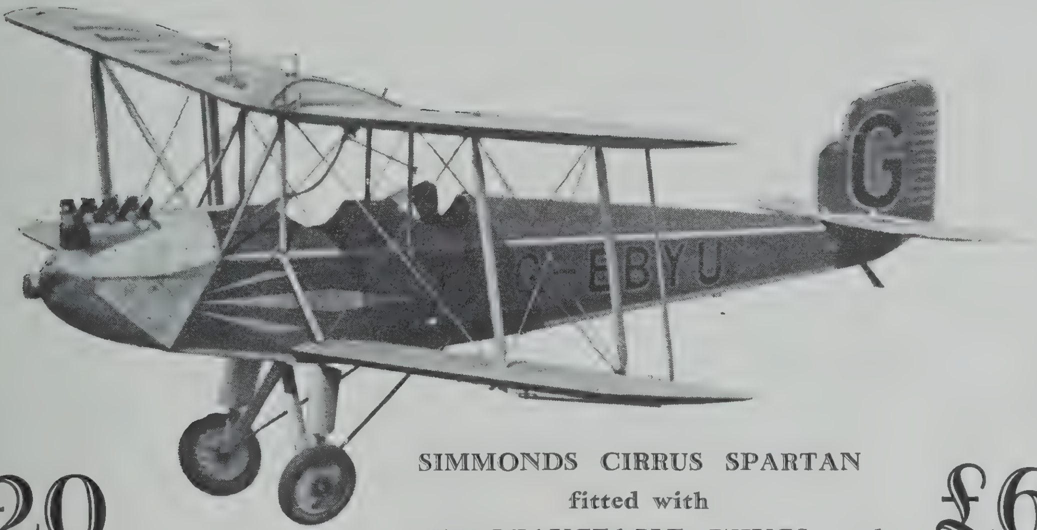
The exhibit of the Union of Socialist Soviet Republi makes a display which is certainly striking. It is ve neatly arranged, the ideas in the machines shown are clev and, if not actually original, do at any rate show that bra have been used in adapting or varying current ideas. T workmanship is distinctly good, and all five machines sho are interesting.

The A.N.T.3, is a so-called postal biplane built to the signs of the engineer A. N. Toupelleff. Actually it is very presentable two-seat reconnaissance machine or fight It is built by the establishment known as Aviatrust, whi appears to be one of the many Russian Government esta lishments formed for the production of aircraft of w Whether it is financed direct by the Russian Governme or by forced contributions from members of a so-called ae nautical society, is not known.

The engine is called an Aviatrust 400 h.p., but as a mat of fact it is a perfectly good American Liberty engine, w

CZECHOSLOVAKIAN TRANSPORT.—The big Aero biplane, with an Avia beyond it on the right. In the background is the Farman "Bar."

SIMMONDS AIRCRAFT LTD



£620

SIMMONDS CIRRUS SPARTAN
fitted with
INTERCHANGEABLE WINGS and
A.D.C. CIRRUS MARK III ENGINE.

£620

GENESIS.

efore obtaining the World's rights of
e "Spartan," we naturally submitted
r to every conceivable test. Her
terchangeable wings and control sur-
ces gave her distinction, but we had to
satisfied that she was really *the* best
ht aeroplane before we would permit
r to multiply. In these eugenic in-
stigations we obtained the first-hand
inions of pilots of all classes — test
lots, air line pilots, military and naval
yers, club instructors, owner drivers.
e venture to think there has never
en any such unanimity of opinion
out an aircraft. Although one
as impressed with this feature and
e other with that, they were
l convinced of one fact—that the
Spartan" is a great advance on any
her light aeroplane.

This is why we are building

GENÈSE.

Avant de nous assurer la licence mondiale du "Spartan," nous avons soumis cet avion à toutes sortes d'épreuves imaginables. Ses ailes interchangeables et ses commandes de vol lui donnaient de la distinction, mais nous devions nous convaincre qu'il était réellement *le* meilleur avion léger avant de lui permettre de se multiplier. Au cours de ces recherches eugéniques nous avons obtenu les opinions directes des pilotes de toutes les catégories—pilotes d'épreuves, pilotes de lignes aériennes, aviateurs de l'armée et de la marine, moniteurs des clubs, pilotes particuliers. Nous osons penser qu'll n'y a jamais eu une telle unanimité d'opinion concernant un avion. Bien que celui-ci ait reçu la meilleure impression d'une caractéristique quelconque et celui-là d'une autre, ils ont tous été convaincus d'un fait—c'est à dire que le "Spartan" constitue un grand développement sur n'importe quelle autre avionnette.

Voici pourquoi nous construisons des

GENESIS.

Ehe wir die Weltlicense fuer das "Spartan" Flugzeug erworben haben, wurde diese Maschine natuerlich jeder denkbaren Probe unterbreitet. Sie zeichnet sich dorch ihre umwechselbaren Fluegeln und Leitwerk besonders aus, wir hatten uns aber davon zu vergewissern, dass sie wirklich *das* beste Leichtflugzeug war, bevor wir ihm erlaubten, sich zu multiplizieren.

Waehrend dieser eugenischen Erforschungen erlangten wir die Meinungen von Flugzeugfuehrern aller Art—Probenfuehrern, Verkehrsfuehrern. Militærischen und Seepiloten, Klubs-Unterrichtern und Privatfuehrern. Wir wagen, daran zu denken, dass es nie eine solche Einmuetigkeit ueber ein gewisses Flugzeug gegeben hat. Obgleich der eine mit dieser Charakterisk und der andere mit einer anderer eingedruckt war, waren alle von der Tat vergewissert, dass das "Spartan" eine grosse Entwickelung ueber irgend welches Leichtflugzeug darstellt.

Aus diesem Grunde bauen wir

SPARTANS

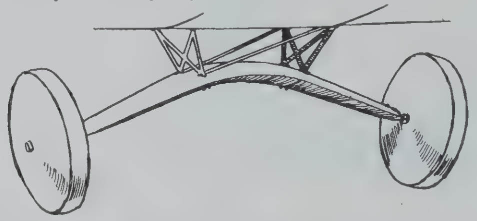
SIMMONDS AIRCRAFT LTD., SOUTHAMPTON.

KINDLY MENTION "THE AEROPLANE" WHEN CORRESPONDING WITH ADVERTISERS.

a Russian name-plate on it. The U.S.S.R. have, for some years, been buying up all the Liberty engines and all the unassembled parts of Liberty engines on which they could lay hands in the States and elsewhere. One believes that they have even gone to the extent of paying for them. So this may be either a completely American engine or one that has been assembled in Russia. It seems to be practically the same thing as the alleged Russian engine known officially as the Bolshevik, which is, in fact, a "Chinese" copy of the Liberty.

The A.N.T. machine itself is built of the aluminium alloy made in Russia which is known as Koltjugalumin. The lines of the machine are good. The top line of the fuselage is practically horizontal, and the lower line runs up to the tail from a pigeon-breasted front, the section of the fuselage aft being a deep triangle. The wings and fuselage are all covered with corrugated Koltjugalumin, so that the general effect is rather that of a deformed Junkers, and the wings are connected by an ingenious form of K strut.

The second machine is described as a *Sanitätsflugzeug*. This is a very ordinary biplane with a fuselage of practically square section designed to carry a couple of stretcher cases and a nurse or doctor, and a pilot. The engine is called a type M.6 300 h.p. In fact it is a perfectly ordinary Hispano-Suisa.

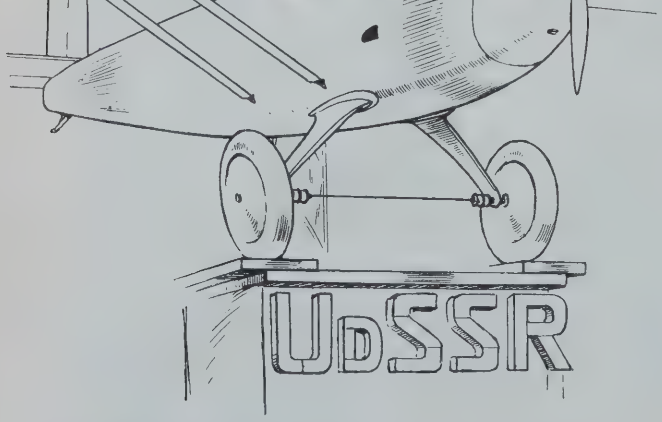


OLD AND NEW.—The wooden bow undercarriage of the all-aluminium-alloy Russian light monoplane.

The *Stürmvogel* (the Russian name cannot be produced) is a light aeroplane built by the Ossoaviachim (or Society of the Friends of Chemical and Air Warfare). It is a low-wing braced monoplane of a mongrel type combining a bit of the De Havilland light monoplane, plus the Parnall Pixie, plus a bit of Klemm, plus a Bristol Cherub engine (or an illicit copy of it), plus an undercarriage consisting of a simple wooden arch which probably works very well, plus a floating tail-plane which is at once elevator and stabiliser.

The fourth machine is an ordinary single-bay braced biplane for school work, also built by the Aviatrust. It has a 100 h.p. radial engine (which might have been designed or built by anybody) with steel cylinders and aluminium heads. The whole machine is quite clean, simple and neat in design, and has none of the freak ideas which seem to be inseparable from all Russian productions, even when they are copies of something else.

The fifth machine is called the *Tri-Druga*, or Three Friends, officially it is called Ossoaviachim N.830. The three friends apparently are engineers Sutugin, Semionow and Gorelow.



THE THREE BOLSHEVIK FRIENDS.—Showing the quaint spread-eagle undercarriage,—not to mention the U.S.S.R. and the Hammer and Sickle.

One fears that the three friends must be imperilling their lives by thus advertising themselves. In a Socialist Soviet Republic advertising of the individual is generally discouraged by execution or by permanent imprisonment, unless the individual has become too powerful to be abolished by any process other than assassination. Incidentally, the last-named of the three friends would appear to be a relative of our amiable Under-Secretary of State for Air in our Labour Government. Surely the noble Lord cannot have renounced his peerage, as an Irish peer has done, and have gone one worse by turning Bolshevik instead of merely Republican.

The machine is a high-wing braced monoplane, a two-seater with a round section fuselage. The pilot and passenger crawl in under the wing as in the A.N.E.C. and the Weebee. It has a Cherub or a near-Cherub engine. An original feature about the machine is its curious undercarriage, in which the struts are spread-eagled with some kind of a spring arrangement connecting them instead of a cross-axle.

The exhibit includes air-screws, wheels, radiators, tie-rods and other component parts, all made by Aviatrust. There is also a snow-sledge built by Aviatrust with a Bistol Lucifer.

Holland.

This exhibit is a sad disappointment. One had expected to see the latest Koolhoven light monoplane and an example of a modern Fokker, but in fact the exhibit consists merely of models of machines produced by these two famous designers and some very interesting maps and photographs shown by the K.L.M. people.

Colombia and Bolivia.

Here is a joint exhibit, evidently under the inspiration of the great Junkers firm, from these two out-of-the-way countries. In each there exists a very successful air line formed by German enterprise and operated with German thoroughness.

The Scadta line in Colombia is actually one of the largest air-lines in the World and it has always operated successfully as a commercial enterprise without Government subsidy.

The Aero-Lloyd Boliviano, which operates six Junkers machines in a country in which the aerodromes vary in level between 15,000 feet and nothing seem to carry on with almost equal success, though they have had one or two rather bad accidents. The exhibit consists chiefly of maps and a number of extraordinarily interesting photographs of the country over which these lines operate.

U.S.A.

A delightful room for a rest, full of nice pictures and a parachute. The States are too busy filling the home market to worry about foreign markets. The question is whether American manufacturers will overflow into the rest of the World before British manufacturers wake up and make what is wanted Overseas.

OUR NEXT AERO SHOW.

Jointly with the Society of British Aircraft Constructors Ltd., the Society of Motor Manufacturers and Traders Ltd., has put in hand the organisation of the Seventh International Aero Exhibition, which will be held at Olympia, Kensington, W., from July 16 to 27, 1929.

The date has to be fixed as stated because Olympia cannot be had a fortnight earlier. That would be a better date, in that distinguished visitors from the Continent to the R.A.F. Display could then be induced to stop a few days extra for the Show,—during which few days they could be entertained by the Royal Aero Club and the S.B.A.C. and personal friends,—and so be put into a good humour for the Show. As it is they can scarcely be expected to visit England twice in a fortnight.

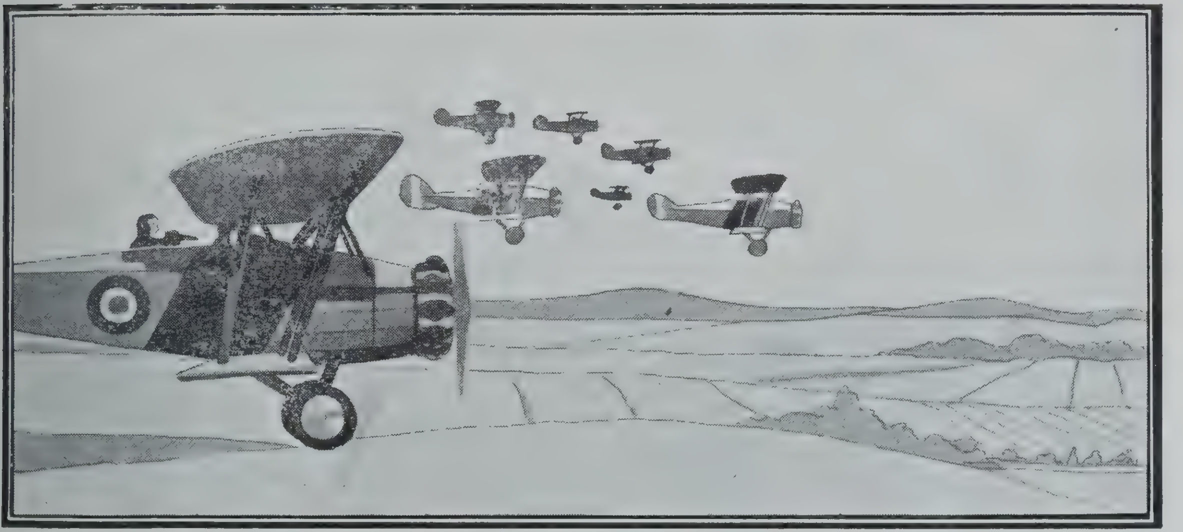
Of course the R.A.F. is not concerned with the Trade, but the strength of the R.A.F. must be based on a strong and healthy Aircraft Trade (*vide* Mr. Churchill and others), so perhaps the R.A.F. could for once help to strengthen the Trade by postponing the Display to fit the Show. After all, Hendon belongs to the R.A.F. and can be used on any date which the Air Ministry wills. One makes the suggestion in all humility.—C. G. G.

THE ANTARCTIC SURVEY

Sir Hubert Wilkins, Lieut. Eielson and the other members of the expedition which is to survey the Antarctic Continent by air in the endeavour to find suitable bases for meteorological stations, arrived at Monte Video on Oct. 9 on the s.s. *Southern Cross*.

The two Lockheed Vega monoplanes and other items of equipment are being trans-shipped to the Norwegian whaling ship *Hectoria*, which is due to sail for Deception Island, the expedition's main base, on Oct. 24. Sir Hubert Wilkins hopes to be able to start operations in November.

Choice of the Experts !



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THE ROYAL AIR FORCE.

The London Gazette.

October 9.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—The following are granted temp. comns. as Flg. Offs. on attachment for duty with the R.A.F. (Sept. 30):—Lt. J. H. Charsley, R.N., Sub-Lt. I. C. Rowe, R.N., Mate R. W. Wicks, R.N.

The following are promoted with effect from Oct. 10:—FLT. LTS. TO BE SQ. LDRS.—R. W. Chappell, M.C., A. H. Wann, T. W. Elmhirst, A.F.C., H. S. Kerby, D.S.C., A.F.C., W. Helmore, G. C. Rhodes, J. A. Sadler, A. G. Bishop, A.F.C.

FLG. OFFS. TO BE FLT. LTS.—G. A. R. Muschamp, J. R. D. Goadsby, S. C. Black, M.M., R. E. Bain, E. B. Addison, F. C. T. Rowe, W. C. Yale, R. S. Blucke, C. F. Sealy, W. C. P. Bullock, J. B. Barrett, H. W. Taylor.

The following Plt. Offs. are promoted to the rank of Flg. Off.:—H. C. Marett (Jan. 14); B. A. J. Crummy (Jan. 14); G. N. S. Lane (Sept. 19). Flg. Off. F. W. Mundy is transferred to the Reesrve, Class A (Oct. 4); Flg. Off. (Hon. Flt. Lt.) L. S. Hamilton resigns his S.S. comn. (Aug. 29); Flg. Off. M. M. Miln relinquishes his S.S. comn. on account of ill-health (Oct. 9); Lt. J. W. Hawkins, R.N., Flg. Off., R.A.F., relinquishes his temp. comn. on return to Naval duty (Aug. 16).

STORES BRANCH.—The following officers are placed on the retired list on account of ill-health:—Flt. Lt. J. Lundon (Oct. 8); Flg. Off. O. W. T. Rogers (Oct. 9).

ACCOUNTANT BRANCH.—Plt. Off. on probation C. Rendle resigns his perm. comn. (Sept. 14). (Substituted for the notification in the *Gazette* of Oct. 2.)

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—H. D. Makgill-Crichton-Maitland is granted a comn. in the Special Reserve as a Plt. Off. on probation (Sept. 3); Plt. Off. on probation H. J. Padfield is confirmed in rank (Sept. 13). The following Flg. Offs. are transferred from Class A to Class C:—E. Fulford (Oct. 5); V. C. Cordingley (July 29); A. H. Padley (June 7); A. I. Riley, A.F.C. (Oct. 5).

Flg. Off. H. J. Phillips is transferred from Class AA to Class C (Aug. 4); Flg. Off. H. C. E. C. P. Dalrymple is transferred from Class C to Class A (Sept. 26).

Flg. Off. W. Dougall resigns his comn. (May 24); Plt. Off. C. S. Dawson relinquishes his comn. on account of ill-health and is permitted to retain his rank (Oct. 10).

AUXILIARY AIR FORCE.

GENERAL DUTIES BRANCH.—The following to be Plt. Offs.:—No. 603 (CITY OF EDINBURGH) (BOMBING) SQDN.—A. Wallace (Sept. 11). No. 605 (COUNTY OF WARWICK) (BOMBING) SQDN.—S. J. Huins (Aug. 10).

Appointments.

Week ending Oct. 15.

GENERAL DUTIES BRANCH.—Wing Commanders F. L. Robinson, D.S.O., M.C., D.F.C., to No. 10 Sqdn., Upper Heyford, to command, 21/9. E. R. Manning, D.S.O., M.C., to No. 7 Sqdn., Worthy Down, pending taking over command, 1/10. A. D. Cunningham, C.B.E., to No. 5 F.T.S., Sealand, to command, 1/10. P. Babington, M.C., A.F.C., to H.Q., Inland Area, for Personnel Staff duties, 1/10

Squadron Leader B. McEntegart, to Air Ministry (Dept. of Ch of Air Staff), 2/10.

Flight Lieutenants G. E. Gibbs, M.C., to C.F.S., Wittering, 2/ R. Pyne, D.F.C., to C.F.S., Wittering, 2/10. S. H. Ware, to Stat H.Q., Cattewater, 2/10. E. A. C. Britton, D.F.C., to No. 39 Sqd Bircham Newton, 15/10. J. C. Stevens, to A. and G. School, E church, 24/9. E. H. M. David, to Superintendent of Reserve, Hend 1/10. C. E. Maitland, D.F.C., to School of Photography, Farnborou 10/10.

Flying Officers C. R. Mason, to R.A.F. Station, Kenley, 5/ N. H. N. Fletcher, to C.F.S., Wittering, 25/9.

MEDICAL BRANCH.—Flying Officers P. B. L. Potter, M.B., to Medi Training Depot, Halton, 2/10. J. L. Groom, N. M. Jerram, G. Paton, M.B., R. W. N. Robins, M.B., B.A., G. O. Williams, B.S to Medical Training Depot, Halton, on appointment to S.S. Comm 2/10.

STORES BRANCH.—Flight Lieutenant H. Cartwright, to No. 4 Sto Depot, Ruislip, 9/10.

H.Q., R.A.F., India.

Headquarters, R.A.F., India, will move from Simla to N Delhi on Oct. 22, 1928. Telegrams will be dealt with Simla up to and including Oct. 21, 1928.

All correspondence for the Air Officer Commandin R.A.F., India, will be addressed to: Imperial Secretari South Block, New Delhi.

The Fleet Air Arm.

A Fleet Order states that Royal Marine officers attache or seconded to the R.A.F. who are desirous of taking e aminations for promotion in the Royal Marines are then selves responsible, when serving at R.A.F. shore station or otherwise not borne on ships' books, for making applic tion to be examined. Attached officers who are borne ships' books will continue under the provisions of Article 769 and 770, King's Regulations and Admiralty Instruction

A Fatal Accident.

The Air Ministry regrets to announce that as the result an accident at Hendon Aerodrome to a Fairey Fox machi of No. 12 (Bombing) Squadron, Andover, on Oct. 11, F Lt. William Edmund Somervell, A.F.C., the pilot of the ai craft, and 243592 Cpl. Christopher John Loud were killed.

At the inquest at Hendon on Oct. 15, Sq. Ldr. T. E. Salt, Andover, said that the machine was a Fairey Fox day bomber, a had done 302 hurs' flying. It was 18 months' old, and he was "pre certain" it had been tested the day before. Replying to the Coron he said that he had not got the log-book. The tail of the machi came off, presumably because some fitting had broken. He h nose-dived this machine at 250 miles an hour.

Wing Cdr. Rice said that the machine was taken down and i

SQUADRON FORMATION.—No. 32 (Fighter) Squadron, R.A.F., flying past the Royal Box at Hendon on Oct. 11 at the R.A.F. Display in honour of the Sultan of Muscat and Oman. The clouds in the background indicate the stormy nature of the weather.—(*"Aeroplane" photograph.*)

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LOWN AND KNOWN ALL OVER THE WORLD.

spected on Sept. 27 and reported to be in perfect order. On the morning of the accident the machine was inspected and signed for by the pilot and Loud as being in perfect order. He could only imagine that the aeroplane was strained in landing at Hendon for the fly-past. If so, any such strain could not be detected without a minute examination. It was not usual to inspect machines after every landing. There was no unusual entry in the log-book respecting this machine.

Wing Cdr. Crosbie, in a written statement, said that the machine was flying at a height of 2,000 ft. It dived at about 250 miles per hour. As the pilot flattened to straighten out the machine just before passing the Royal enclosure the tail was seen to oscillate from side to side. The oscillation increased till the fuselage appeared to break and the machine nose-dived to the ground about 360 yards past the Royal enclosure, completely out of control. Just as it dived Loud was apparently flung out, and the machine struck the ground and the pilot was then flung out. In the witness's opinion there was some hidden defect in the machine, which was now being examined.

The jury returned verdicts that the men met their deaths through an accident caused by some structural defect in the aeroplane.

The World's Speed Record.

The first trial flight of the Supermarine S.5 seaplane (Napier Lion engine) in which Flt. Lt. D. D'A. A. Greig, D.F.C., A.F.C., will make an attempt on the World's Speed Record, was made at Calshot on Oct. 10. The trial lasted seven minutes.

In response to a wireless message from the R.A.F. Station at Calshot, the S.S. *Aquitania*, which was passing at the time of the trial, went dead slow until the S.5 had left the water.

Sir Philip Sassoon's Voyage.

The Service Blackburn Iris II flying-boat (three Rolls-Royce Condor engines) piloted by Sq. Ldr. C. L. Scott, D.S.C., and Flt. Lt. L. Martin, in which the Under-Secretary of State for Air is travelling to visit R.A.F. Units overseas, arrived at Abukir on Oct. 2.

There Sir Philip Sassoon embarked in an R.A.F. machine and flew to Heliopolis. On Oct. 3 and 4 he inspected R.A.F. Units in Egypt and on Oct. 5 he flew to Khartum in a Fairey IIIF. On Oct. 9 he returned to Cairo and on Oct. 11 flew to Baghdad.

On Oct. 12 he rejoined the Iris at Basrah. On Oct. 14 the Iris made a forced landing at Jask owing to trouble with the starboard engine. The flight continued on Oct. 15 and the Iris alighted in Karachi Harbour the same afternoon.

At Karachi Sir Philip Sassoon was received by Air Vice-Marshal Sir Geoffrey Salmond, Air Officer Commanding R.A.F., India, and Wing Cdr. R. J. Bone, Officer Commanding the R.A.F. Depot, Karachi.

Group Captain Williamson.

The *London Gazette* of October 3 contains the announcement that Wing Cdr. H. A. Williamson, C.M.G., A.F.C., is placed on the retired list at his own request and is permitted to retain the rank of Group Captain (Sept. 30.)

Group Captain H. A. Williamson was born in 1885 at St. George, Edinburgh, and was educated at a preparatory school and in H.M.S. *Britannia*. He entered the Royal Navy as a midshipman in 1901 and was promoted to be sub-Lieutenant in 1904 and Lieutenant in 1906. He learned to fly on a Bristol biplane on Salisbury Plain and his Royal Aero Club Certificate No. 160 is dated Nov. 28, 1911. He was at that time a submarine officer. In 1912 the Admiralty expressed appreciation of a paper written by him on the use of aeroplanes for Naval Service. A reference to this paper appears in *The Story of a North Sea Air Station* by C. F. Snowden Gamble, and reads as follows :—

> Attention was soon to be drawn to this list of the various duties expected from the naval aviator, owing to the submission by Lieut. H. A. Williamson, R.N. (a submarine officer holding a Royal Aero Club certificate), of a paper, on Jan. 2 of the following year (1912), dealing with the use of aeroplanes in detecting submarines, and an elaboration of the idea of an aircraft carrier. This paper is of considerable historical value, and a testimony to the author's foresight and imagination, for the ideas he expressed are substantially those which were successfully developed during the War of 1914-18. Lieutenant Williamson drew attention to the value of aircraft (operating from a parent ship) for anti-submarine duties, and described how depth charges (he said "bombs exploding 20 feet under the surface of the water") might possibly be used to destroy submarines. In addition a scheme was elaborated for fitting ships with a device to enable machines to "take-off" and land again on return along certain wires. The whole scheme, however, was pronounced by the Admiralty to be impracticable; nevertheless Lieutenant Williamson did some good, in that his paper aroused interest, and in June and September (1912) attempts were made at Harwich and Rosyth to detect submarines from the air.

On July 1, 1914, Lieutenant Williamson was appointed Flight Lieutenant, R.N.A.S., and posted to the Great Yarmouth Air Station. In October, 1914, he was promoted to be Lieut.-Commander, R.N., and appointed Flight Commander, R.N.A.S. In 1915 he was posted to the Eastern Mediterranean and flew seaplanes from the *Ark Royal* during the Dardanelles Campaign. During these operations he was severely injured in a crash. He was appointed Squadron Commander in April, 1916, and Wing Commander in Ma 1917. After the Dardanelles Campaign he was appointed t the War Staff of the Admiralty, the first officer with A experience to be so appointed. In spite of his junior ran at the time he did magnificent work in this capacity an earned the admiration of the War Staff. He was appointe Group Commander with the temporary rank of Colonel i June, 1918. In the New Year Honours of 1919 he was mad a Companion of the Order of St. Michael and St. George i recognition of distinguished services rendered during the Wa In June, 1919, he was awarded the Air Force Cross. I August, 1919, his name was removed from the Navy List o appointment to a permanent commission in the R.A.F. wit the rank of Wing Commander.

After the Armistice he was posted to the Air Ministry wher he did a great deal of valuable work. From April, 1922, unt February, 1923, he was on the half-pay list and he then wer to Headquarters, 'Iraq Command, forTechnical Staff Dutie In May, 1924, he was restored to the Home Establishmer and posted to the Air Ministry, Deputy Directorate of Organ sation, where he remained until his retirement.

Wing Commander Barton.

Wing Commander A. J. F. Barton, O.B.E., whose appoin ment to the Directorate of Operations and Intelligence, A Ministry, for Air Staff Duties, is dated Sept. 15, was bor in 1891 at Elgin, and educated at Wellington College an Sandhurst. He entered the Royal Scots Fusiliers in Octob 1910, and was promoted Lieutenant in November 1911. H learned to fly on a Vickers biplane at Brooklands, and h Royal Aero Club certificate, No. 690, is dated Nov. 24, 191 In April 1914 he was seconded to the Royal Flying Corp and attended the fifth course at the Central Flying Schoo Upavon. In August 1914 he was transferred from No. Squadron to No. 4 Squadron, R.F.C., and proceeded ove seas with No. 4 Squadron shortly after the outbreak of wa In March 1915 he had a bad crash while starting out on night-bombing expedition. In May 1916 he was appointe Brigade Major, 2nd Brigade, in France. From Februar 1917 to March 1919 he was employed at R.F.C. and R.A. Headquarters in France as S.O.2 and S.O.1. He was Me tioned in Despatches four times, awarded a Brevet Majorit in January 1918, the Croix de Guerre (France) in April 19 and the Order of the British Empire in the New Yea Honours in 1919.

In August 1919 he was appointed to a permanent commi sion in the R.A.F. with the rank of Squadron Leader. Fro January 1920 to June 1922 he commanded No. 28 Arm Co-operation Squadron, R.A.F. in India. He was promote Wing Commander in January 1922 and appointed to comman No. 4 (Apprentices') Wing, Cranwell, in August 1922. H remained in command of the Wing when it removed Halton. In February 1927 he was appointed to comman the R.A.F. Station at Duxford.

Wing Commander Barton is a keen rifle and revolver sho and has taken a special interest in the R.A.F. Rifle Associ tion. He was R.A.F. Pistol Champion in 1924 and R.A. Revolver Champion in 1925. From 1923 to 1927 he was member of the Scottish Rifle Team and Captain of the R.A. Revolver Team. In 1926 he shot for Great Britain.

He also won the R.A.F. Welter-weight and Light-weig Steeplechases in 1925 and the Cranwell Hunt Club Race f four years in succession. His other sporting activities hav included big game shooting in Central Africa, India an Kashmir.

The R.A.F. Memorial Fund.

A meeting of the Executive Committee of the R.A. Memorial Fund was held at Iddesleigh House on Oct. 1 The Chair was taken by the Hon. Treasurer, Sir Charl McLeod. The usual financial resolutions were approved.

The attention of the Committee was called to the ve generous gift of £919 13s. 7d. made to the Fund by t Directors of the Carlton Theatre Co. This sum represent the takings at the Box Office at the Carlton Theatre Sundays in connection with the production of the fil "Wings."

The Secretary informed the Meeting that the Grants Su Committee had dealt with 95 cases during the 15 weeks sin the previous meeting and that the Secretary himself ha dealt with 296 smaller cases.

A letter of resignation of his membership of the Executi Committee was read from Air Vice-Marshal Sir Robe Brooke-Popham, K.C.B., who is proceeding on Nov. 1 take over the command of His Majesty's Forces in 'Iraq. S Robert Brooke-Popham has served on the Executive Com mittee of this Fund since its beginning, nine years ag and the Committee accepted his resignation with since regret.

THE R.A.F. DISPLAY FOR THE SULTAN OF MUSCAT.

short Display in honour of His Highness the Sultan of at and Oman was given by the Royal Air Force at lon on Oct. 11.

e Display was timed to begin at 14.20 hours but the n did not arrive until about 14.45 hours.

e Sultan of Muscat and Oman was received by Air Vice-hal Sir John Higgins, K.B.E., C.B., D.S.O., A.F.C., Air -Marshal Sir Philip Game, K.C.B., D.S.O., Air Vice-hal F. R. Scarlett, C.B., D.S.O., and Air Vice-Marshal Robert Brooke-Popham, K.C.B., C.M.G., D.S.O., A.F.C. 14.30 hours a deluge of rain descended which lasted for an hour. This prevented the inspection of aircraft by Highness which was the first item on the programme, t 15.00 hours the rain had stopped and five Siddeley ns of No. 25 (Fighter) Squadron took off in formation ne Converging Bombing display. The targets were two tents and in spite of the extremely bumpy state of the ner the bombing was extremely accurate and well timed. ct if it had not been for two bombs which fell a few wide of the objective the average of the shooting have been very high indeed. Unfortunately the rain eached the fuses and contrary to the usual practice at Displays the tents failed to burn and had to be re-d by aircraftman-power under the cover of the next on the programme.

e Squadron Drill by a Fighter Squadron was performed o. 29 (Fighter) Squadron (Armstrong Siddeley Siskins r engine) under the command of Sq. Ldr. M. L. r, A.F.C. The Squadron crossed the aerodrome in lron "V" formation and returned in line abreast. They d again, and reforming into Flights in line astern, in that formation in front of the Royal box. They re-d on the turn and dived past the saluting base in lron formation. It was a very neat and accurate per-nce and reflects great credit on the Squadron.

No. 29 Squadron landed No. 207 (Bombing) Squadron ey IIIFs, Napier Lion engine) took off to illustrate the off and fly past of a day bomber Squadron. Again the tion flying could not have been better if the day had a perfect one. To take up position for the dive past luting base the Squadron came over in a close "V" tion which was absolutely perfect and drew a murmur preciation from the small but critical group of specta-onsisting almost entirely of R.A.F. personnel and their ns. The Squadron then dived past the saluting base ights, the first Flight was close in, the second Flight r away and lower and the third Flight further away wer than the second.

Message-picking-up display by a Flight of No. 26 Co-operation Squadron (Armstrong Whitworth Atlas, rong Siddeley Jaguar engine) was done in front of oyal Box and unlike the annual R.A.F. Display the could be seen clearly. The Flight came down to ires in formation with their engines throttled down limbed away with the messages streaming out behind They came down a second time and this time only the three secured the message. The third time round light came down and the observers threw the replies messages overboard onto a ground target.

While the Wing of Fighter Squadrons were taxying into position to take off, two Gloster Gamecocks (Bristol Jupiter engine) of No. 23 (Fighter) Squadron took off for a display of individual aerobatics. While they were gaining height the Fighter Wing took off. The Squadrons were No. 41 (Fighter) Squadron (Armstrong Siddeley Siskin, Jaguar engine), No. 32 (Fighter) Squadron (Armstrong Siddeley Siskin, Jaguar engine), No. 17 (Fighter) Squadron (Gloster Gamecock, Bristol Jupiter engine), No. 23 (Fighter) Squadron (Armstrong Siddeley Siskin, Jaguar engine). The Fighter Wing was led by Wing Cdr. F. Sowrey, D.S.O., M.C., A.F.C.

The display of Individual Aerobatics by Flg. Off. F. F. Wilkinson and Flg. Off. H. A. Purvis was up to the usual standard of No. 23 Squadron and the R.A.F. generally. They approached the aerodrome from opposite angles and passed each other in a dive each climbing out of the dive into a roll. A half-roll on top of a loop was followed by a flick roll just off the ground. Then a loop with a double roll on top. For a few seconds they were both upside down and then they both flew across the wind doing one slow roll after another as they went. It was a most delightful display of advanced aerobatic training.

In the parade and fly past of types of bombers, one machine of each of five types taxyed past the enclosure, took off, flew round and dived past the saluting base. The five machines were, Fairey Fox (Curtiss D.12 engine), Fairey IIIF (Napier Lion engine), Hawker Horsley (Rolls-Royce Condor engine), Vickers Virginia (Napier Lion engines), Handley Page Hyderabad (Napier Lion engines).

During the fly-past an accident occurred to the Fox which caused the first fatal accident to a Service machine at any R.A.F. Display. The Fox, piloted by Flt. Lt. W. E. Somervell, A.F.C., with Cpl. Loud as observer, both of No. 12 (Bombing) Squadron, had started to dive past the saluting base when it became perfectly obvious to the spectators that something was wrong with the tail unit. There was a distinct wobble which increased until, towards the base of the dive, the tail broke off. The machine hit the ground at the full speed of the dive. Cpl. Loud was flung out of the machine when the tail broke. Both he and Flt. Lt. Somervell were killed instantly.

The rest of the bombers flew past followed by the Fighter Wing and then the remaining aircraft returned to their home stations the flying programme having been concluded according to plan.—C. M. MCA.

AN APPRECIATION OF THE R.A.F.

In the course of his speech at the dinner given in his honour by the British Government on Oct. 11, the Sultan of Muscat and Oman said that his interest in aviation had been increased by his flight with Sir Sefton Brancker and by the wonderful Royal Air Force Display which he had witnessed that afternoon.

The Display had been marred by a fatal accident, which had filled him with grief that he could not find words to express. He had been deeply impressed by the heroic manner in which the proceedings had been carried on. He understood that this was in the tradition of the great Royal Air Force. It had been a wonderful spectacle of courage, which had mitigated the sadness in his heart for the gallant airmen

DISTINGUISHED VISITOR.—His Highness the Sultan of Muscat and Oman at the R.A.F. Display given in is honour at Hendon on Oct. 11. On his left is Air Vice-Marshal Sir John Higgins. On the right of the icture, talking to a member of the Sultan's suite, is Air Vice-Marshal Sir Philip Game.—(*"Aeroplane" photograph.*)

THE ZEPPELIN'S SUCCESS.

There is a singular appropriateness in the fact that while Germany is holding the first International Exhibition of Civil Aircraft, German Aeronautics should achieve another triumph in the crossing of the Atlantic by the latest Zeppelin airship, L127, named *Graf Zeppelin.*

Congratulations on this splendid performance must be added to those due for the success of the Aero Show.

Carping critics, who are still so foolish as to display, if they do not personally feel, anti-German tendencies, have made much in popular London papers of the fact that the *Graf Zeppelin* was in the air for $111\frac{1}{2}$ hours from Friedrichshafen on Lake Constance to Lakehurst near the coast of New Jersey. They point out that this is $3\frac{1}{2}$ hours longer than the time taken by the British R.34 nine years ago and that it is $5\frac{1}{2}$ hours longer than the *Mauretania's* sea passage of 4 days 10 hours.

They carefully omit to state that the R.34's journey from Pulham, in Norfolk, was a good many hundreds of miles shorter than the journey from Friedrichshafen, and some 20 hours slower than the 84 hours which was the Z.R.3's time from Friedrichshafen in 1924. They also omit to state that the *Mauretania's* sea passage is reckoned from Southampton or Cherbourg, which is also a great many hundreds of miles short of the Zeppelin's distance. And they omit to mention that the Zeppelin's course by way of Madeira, the Azores, and Bermuda adds several hundred more miles to the distance.

Furthermore, there is the fact that the *Graf Zeppelin* is quite a new ship, which has only made two or three short test flights. It is much bigger than the R.34 or any previous Zeppelins, and, though built on the familiar Zeppelin system, embodies many alterations and is therefore very nearly as much an experiment as are the R.100 and R.101 which we have been building in this country for several years past.

Some idea of the difference between the *Graf Zeppelin* and the Z.R.III, which flew from Friedrichshafen to Lakehurst in October, 1924, may be gathered from the fact that whereas Z.R.III carried in all about 30 people, crew and passengers included, the *Graf Zeppelin* carried about 60 people. The fact that the Z.R.III only took 84 hours for the same journey is no reason for claiming, as do these ill-informed critics, that no advance has been made in Zeppelin design since 1924. The Z.R.III had perfect weather and favouring winds practically all the way. The *Graf Zeppelin* met with the worst of bad weather, and, as some misl occurred to the port horizontal fin, Dr. Eckener, the capt of the ship and the most experienced airship commander the World, naturally did not force the ship at full po through the gale which was met in the Bermuda area.

Critics of airships forget, either in ignorance or liberately, that the development of these aircraft m necessarily be slow because so little money is forthcom for the building of new and experimental types. Even such an ancient business as ship-building designers can solve all problems on paper, as is shown by the fact t after a hundred years of steamship building the *Maureta* had to be fitted with a new pair of propellers after ev round trip for many months before a design was discove which gave the best results.

Therefore, considering that the ship itself was an expe ment, and that it met the worst of weather on the voya its safe arrival in America is a triumph alike for its signers, its builders, its commanding officer and its cr We can hope nothing better than that our own two airsh when at last they take the air may put up as good performance.—C. G. G.

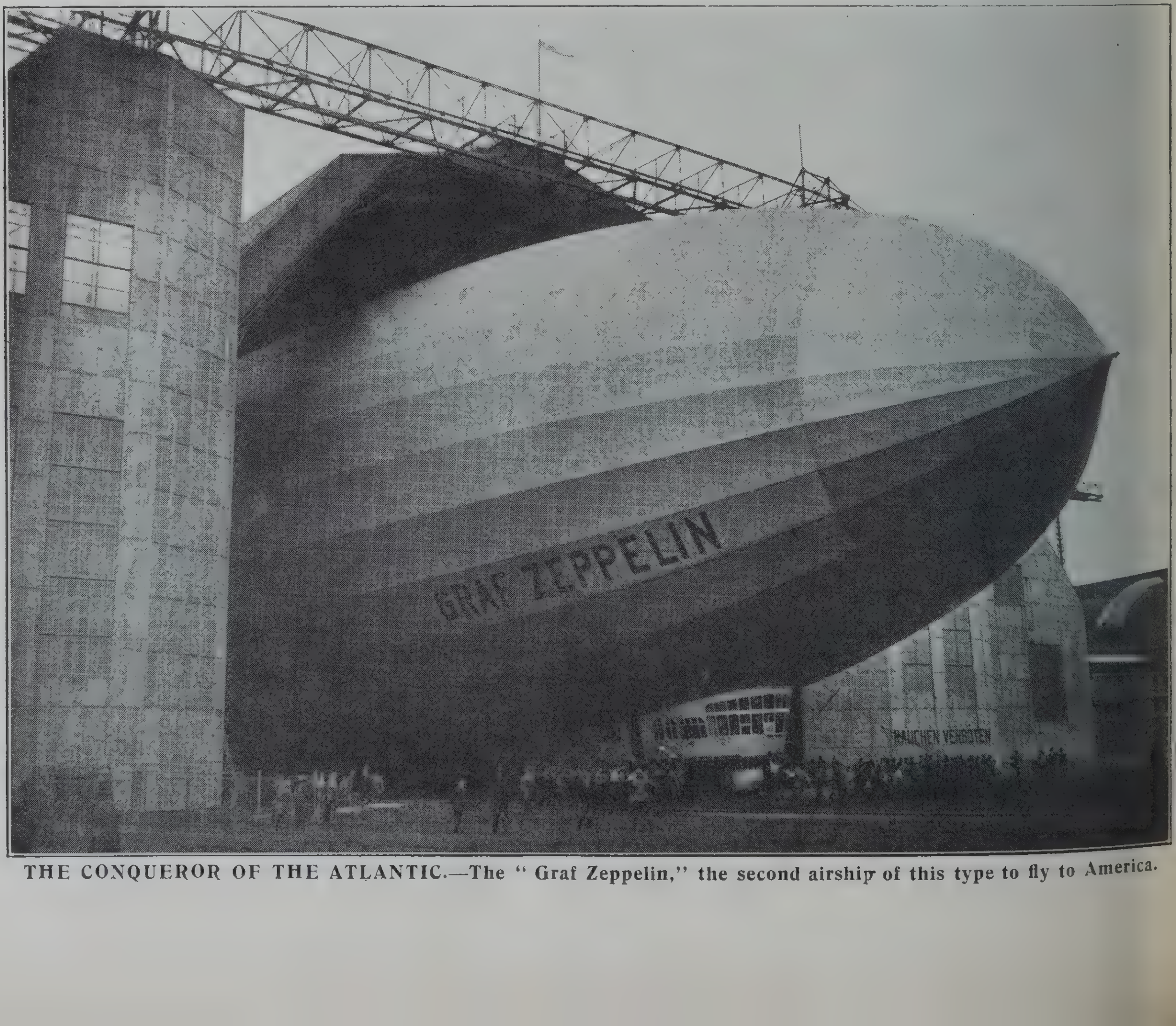
THE ATLANTIC CROSSING.

The *Graf Zeppelin* left Friedrichshafen at 07.50 ho (local time) on Oct. 11 for Lakehurst, New Jersey, U.S. and reached that destination at about 17.40 hours (lo time) on Oct. 14, after about 112 hours (elapsed time) the air.

The airship had on board a crew of forty and twe passengers, with the veteran Zeppelin pilot and desig Dr. Eckener in command. Four years plus one day earl Dr. Eckener had left Friedrichshafen on LZ126 (now U.S. Navy's airship Z.R.3, *Los Angeles*), for the sa destination.

Among the officers who accompanied Dr. Eckener w Captains Lehmann, Fleming and von Schiller, all fam Zeppelin commanders of the War, and Lt. Comm. Ros dahl, U.S.N., who has commanded the *Los Angeles* si her delivery to the United States.

The passengers included official representatives of German Reich and Prussian Governments, Col. Herre late of the Spanish Army Air Service and now of Sociedad Colon Transaera Española, and the late Co Zeppelin's son-in-law, Count Brandenstein.



THE CONQUEROR OF THE ATLANTIC.—The "Graf Zeppelin," the second airship of this type to fly to America.

TWO GREAT FLIGHTS—

LIGHT
AEROPLANE
ENDURANCE
RECORD *and*—

Maurice Finat on a Caudron monoplane (40 h.p. Salmson engine) remained in the air for 24 hours 36 mins. 33 secs. thus creating a new endurance record for light aeroplanes.

—20,000 MILES
OVER AFRICA

The 20,000 miles flight of Messrs. Mauler and Baud—Paris — Capetown — Paris constituted the first aerial journey by way of the West African coast. The monoplane was a Caudron fitted with a 140 h.p. Salmson engine.

REMARKABLE TESTS OF RELIABILITY
ON

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Announcement of the VACUUM OIL CO., LTD., CAXTON HOUSE, LONDON, S.W. 1

One woman passenger, Lady Drummond Hay, was the only British person on board. She is a popular writer in popular papers and the wife of a Knight. Four of the passengers are reported to have paid for their passage.

Weather conditions over the North Atlantic at the start of the flight were unfavourable, and a southerly course was accordingly set. The *Graf Zeppelin* passed over Lyon, Barcelona (19.00 hrs. G.M.T. Oct. 11), reached Gibraltar at 05.00 hours on Oct. 12, and was reported as over Funchal (Madeira) at 15.00 hours on the same day, where a parcel of mails for the German Consulate was dropped.

From Madeira a north-westerly course was taken, which apparently took the airship into rough weather, for wireless reports a little after passing Madeira record that the passengers were "very airsick," and a more westerly course was thereafter set.

At 11.25 hours G.M.T. Oct. 13 the U.S. Navy Department at Washington received from Lt. Comm. Rosendahl a wireless message stating that the port horizontal fin had gone wrong, and asking that surface ships should stand by to give help if required. Three hours later a second message was received that assistance would not be needed, as temporary repairs had been made and the ship was proceeding at "reduced air speed and 50 knots sea speed" on her course.

About midnight (G.M.T.) Oct. 13 the *Graf Zeppelin* passed over Bermuda in fair weather. Thereafter strong head winds seem to have been encountered, for the ship was sighted by the *S.S. Lefcomo* 60 miles East of St. Davids Island at 05.00 hrs. on Oct. 14, and she was sighted over St. George Island nearly six hours later, having made less than 100 miles progress in eleven hours. The ship was then 700 nautical miles (800 land miles) from the U.S. coast.

At 10.10 hours (local time, or about 15.00 hrs. G.M.T.) the ship crossed the coast a little north of Cape Charles (Virginia) and proceeded to Washington, where she circled the city, passing over the Capitol at 12.00 hrs. (local time). She then proceeded to New York via Baltimore and Philadelphia, reaching New York at 16.00 hrs. (local time).

Here another circuit was made before turning back t Lakehurst, where a landing was made at 17.40 hrs. (loca time).

The ship was manhandled into the shed at the Naval Airship Station for the disembarkation of passengers, and wa thereafter "walked out" and moored at a "stub" mas for the night.

The damage to the horizontal fin was very obvious from the ground during the passage over Washington and New York. Report states that about one-fifth the fin area wa stripped of fabric. Nevertheless the ship seemed under perfect control, and Dr. Eckener would scarcely have made circuits over Washington and New York, or have added some 80 miles to his journey by going out of his way to pass over the latter city had the ship been in any difficulty.

The presumption is that the slow progress from Bermuda was due to a desire to avoid further possible damage to the fin by forcing the speed of the ship, and not to any difficulty in handling it.

A wireless report to one of the London evening papers relating apparently to the disturbance which damaged the fin, describes the ship's breakfast table as having been cleared and the passengers decanted from their seats as the result of violent pitching. In addition, the delay seems to have led to a shortage of food supplies, so that altogether the journey was scarcely an ideal one from the passengers' point of view.

Those who subscribe to the theory that "Gentlemen prefer Aeroplanes" will doubtless be fortified in their faith by these facts, but it seems well to point out that of four attempts made to cross the North Atlantic by airship four have been successful, despite very adverse weather on at least two of these attempts.

Further, the discomforts suffered by the passengers on this last trip do not so far appear to have greatly exceeded those often encountered by steamship passengers on the Atlantic at this time of year.

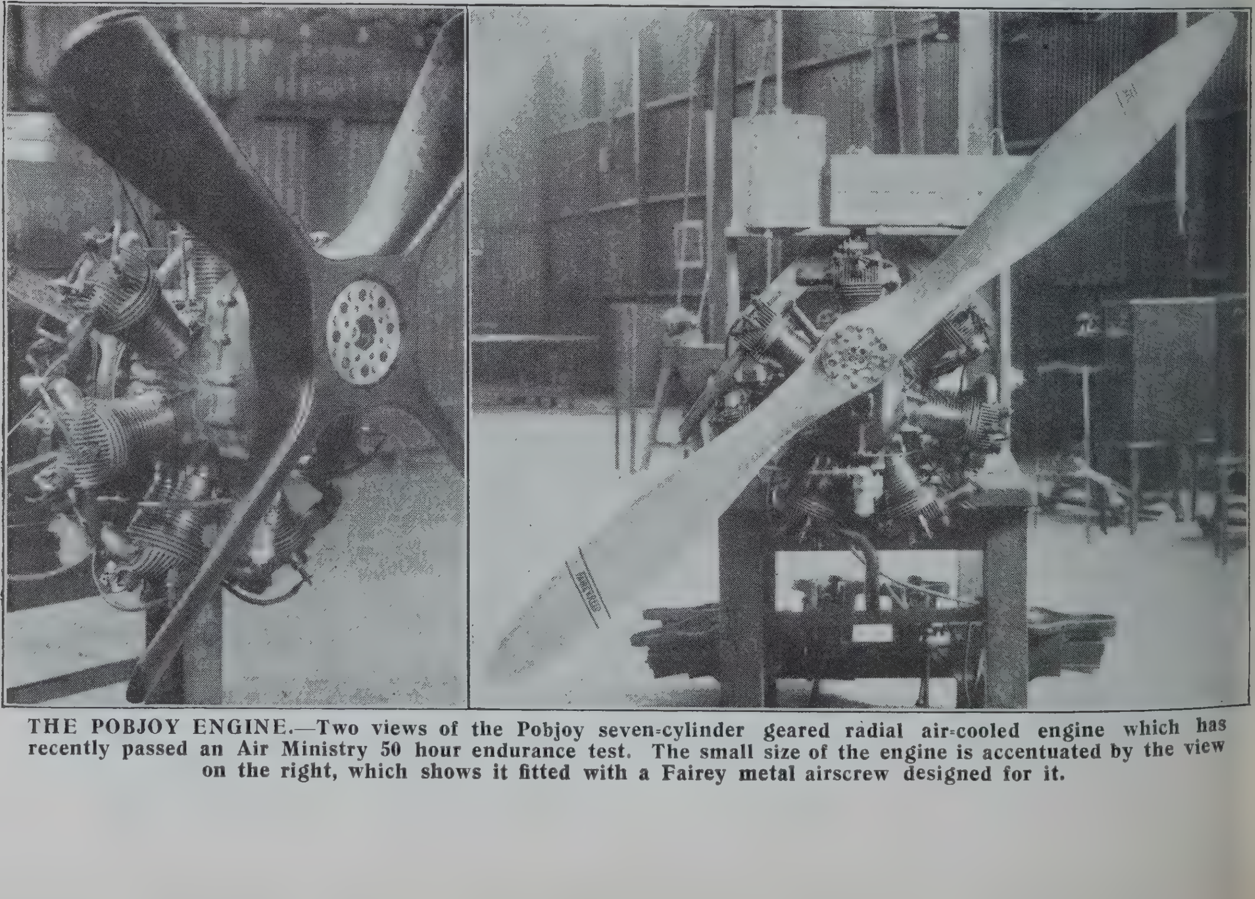
THE POBJOY "P" TYPE ENGINE.

An engine of really light weight and small bulk for light aeroplanes has been produced by Mr. D. R. Pobjoy, of Minster-on-Sea, Sheppey, Kent, and it has just successfully passed a fifty-hour endurance test under official type-test conditions.

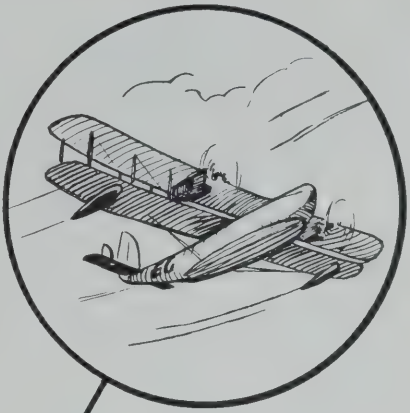
This engine is robust in construction; the low weight is entirely due to the small size and bulk of the engine; the high power is obtained by running the engine at 3,000 r.p.m. and driving the airscrew shaft through a simple reduction gear.

The seven small pistons running at comparatively high revolutions, though moderate piston-speed, permit the engine to operate with complete absence of vibration, and to produce a very smooth reaction on the mounting.

In spite of its speed of revolution, the engine shows a high degree of reliability and durability, as a result of careful attention to the design of bearings and details. The engine subjected to the 50 hours test had previously done about 120 hours' full-speed running. Very little wear, however, had



THE POBJOY ENGINE.—Two views of the Pobjoy seven-cylinder geared radial air-cooled engine which has recently passed an Air Ministry 50 hour endurance test. The small size of the engine is accentuated by the view on the right, which shows it fitted with a Fairey metal airscrew designed for it.



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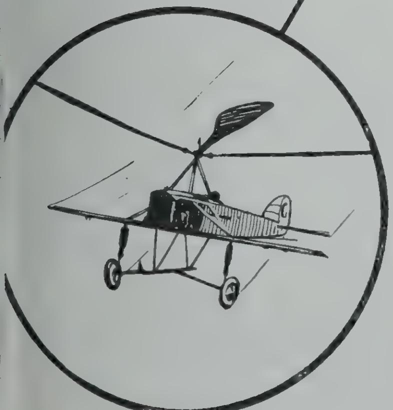

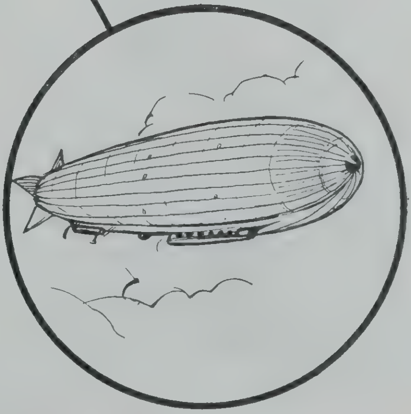

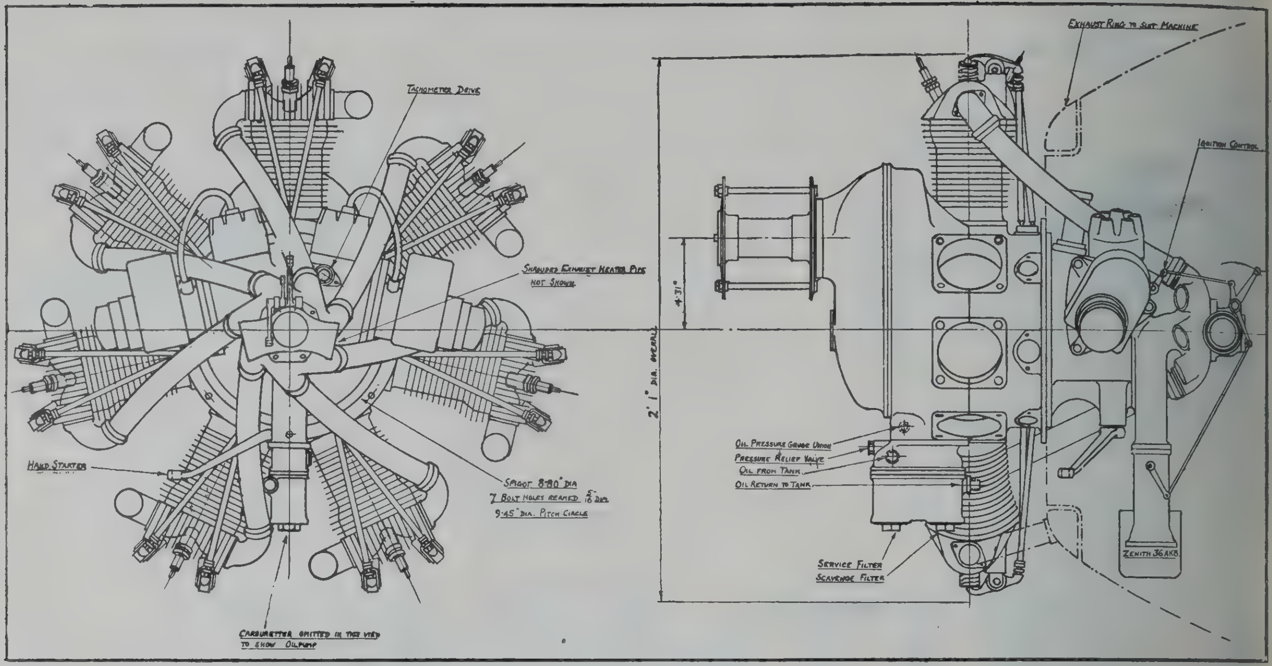

taken place. The official report on the strip inspection states that everything is in excellent condition.

New piston-rings were fitted some time previous to beginning the endurance test. They appear to have been scarcely run in, for the final power curve shows that the engine developed at the end of the tests $1\frac{1}{2}$ h.p. more than at the start. The oil consumption also steadily diminished, and the average for the last 20 hours was $1\frac{1}{2}$ pints per hour.

The exhaust-valves, as viewed through the exhaust ports, remained black throughout the tests. Their seats are in excellent condition.

Starting from dead cold by turning the airscrew is easy, no priming being required. This is due to the design of the induction system, the small bulk of the engine, and to the fact that the magnetos run much faster than the airscrew.

A handstarter, to be operated from the aeroplane cockpit, has been designed for this engine, but has not yet been fitted.

Specification.

Cylinders.—72 m/m. stroke, 87 m/m. stroke, 2,479 c.c. total capacity. Steel barrels screwed into duralumin heads. Two overhead valves per cylinder.

Pistons.—Slipper type, duralumin. Gudgeon-pins float in pistons and connecting-rods.

Connecting-rods.—Master rod with unsplit big-end ring. A floating bronze bush runs in this ring, which is hardened, and on the crank-pin. Six auxiliary-rods are hinged to the master rod by floating wrist-pins.

Crankshaft.—Single-throw divided type to permit use of unsplit big-end and bush. Carried in two roller bearings on each side of crank, and one plain bearing in front cover of crankcase. Case-hardened crankpin.

Crankcase.—Four sections, all aluminium castings. The two central sections, split in the plane of cylinders, support the cylinders and carry the crankshaft roller bearings. The front cover houses the front bearing, the reduction gear and the thrust and journal bearings for the airscrew shaft. The rear cover houses cam-gear, and carries magnetoes, induction spider and carburettor.

Valve-gear.—Valves are driven through push-rods and overhead rockers from a cam-ring and tappets at the rear of the engine. Ball bearings are fitted to the rockers.

Lubrication.—A sump, which contains scavenger and pressure oil pumps and filters, is attached to the bottom front section of crankcase. The filters are removable for cleaning without disconnecting any oil-pipes. Oil from the pressure-pump passes through passages drilled in the front cover to the front plain bearing of crankshaft, and thence into the crankshaft proper. It then passes into the interior of a small hollow fly-wheel where centrifugal force causes any dirt that may have passed the filters to be deposited. This fly-wheel is closed by a screwed-on cover so that it may be cleaned out at intervals. Thereafter the oil passes to the big-end. Normal oil pressure 45 lbs./sq. in.

Ignition.—Two single-cylinder B.T.H. magnetos running at $1\frac{3}{4}$ crankshaft speed are fitted. Each is connected through seven-point distributor to a plug in each cylinder.

Carburation.—One Zenith carburettor supplies mixture to the centre of an aluminium spider, and thence through induction-pipes to inlet-valves. A "hot-spot" exhaust heater is provided at the centre of the spider.

Air-screw Drive.—The air-screw shaft is driven through a double helical spur-gear of 1.91 to 1 ratio. The fly-wheel already mentioned as serving as a centrifugal oil cleaner serves also to steady the torque on the gears.

Overall Diameter.—25 inches (636 m/m.).

Weight.—115 lbs. (52 kg.).

Performance.—Rated output 60 b.h.p. at 3,000 r.p.m. (1,570 r.p.m. of air-screw), Maximum 67.5 b.h.p. at 3,300 r.p.m., Fuel consumption (80 per cent. petrol, 20 per cent. Benzol) 0.57 lbs. (.26 kg.) per h.p. hour, Oil consumption .023 pint (.013 litre) per b.h.p. hour.

NEW ZEALAND TO AUSTRALIA.

Capt. Kingsford-Smith and Mr. Ulm left Blenheim (New Zealand) at 04.54 hours on the morning of Oct. 13 on a return flight to Sydney across the Tasman Sea. They flew the Fokker monoplane *Southern Cross* which was used for the flight from Oakland, California, to Sydney, in June of this year and for the recent flight from Sydney to New Zealand.

They are reported to have reached Sydney safely early on the morning of Oct. 14 after meeting strong adverse winds on their way.

The Australian coast was first seen at 00.45 hours but dense clouds and fog made it difficult to recognise the exact locality, and some two and a-half hours of groping about the coast was necessary before the aerodrome at Richmond was found.

Here failure of the flood lights increased the difficulty of landing, which was however made without damage.

THE FLIGHT TO THE DUTCH INDIES.

The fourth of the Fokker F.VII-3m machines which left Amsterdam on Oct. 4 for Batavia reached Cawnpore on Oct. 10 and landed spares for the machine which was damaged there on Oct. 2, and arrived at Calcutta on Oct. 11.

The repairs to the damaged machine will it is reported take about ten days.

BERLIN—TOKYO.

Baron von Hünefeld—the financier of and passenger in the Junkers monoplane *Bremen* which made the first Westerly crossing of the North Atlantic Ocean—left Berlin on Sept. 18 with intent to fly to Tokyo.

The machine used was a Junkers monoplane of the W.33 type (Junkers L.5 engine) similar to that used for the Atlantic flight.

Baghdad was reached on Sept. 20 without incident and Bushire on Sept. 21. Here however the Persian authorities are reported to have detained Baron von Hünefeld and his companions on the ground that their credentials were not in order. But evidently all went well for he left Mandalay on Oct. 12 and reached Bachanay (French Indo-China) on the same day.

Baron von Hünefeld reached Canton on Oct. 14 and Shanghai on Oct. 15.

LADY BAILEY'S PROGRESS.

Lady Bailey, who is flying from Cape Town to London by way of the Belgian Congo and the West Coast of Africa in a D.H. Moth (A.D.C. Cirrus engine) is at present detained at Loanda, Portuguese West Africa, with magneto trouble.

COMMANDER C. D. BURNEY.

Commander C. D. Burney, M.P. for the Uxbridge Division, has announced that he will not seek re-election after the end of the present Parliament. He intends to devote his whole time to the development of Imperial airship communications.

A NEW FAIRCHILD DEVELOPMENT IN CANADA.

The Montreal correspondent of *The Daily Telegraph* reports that Fairchild Aerial Surveys (of Canada) Ltd. are to build a new factory at Three Rivers, Quebec, where they will construct Fairchild monoplanes for sale in the Dominion.

FOUR
METAL CONSTRUCTED
SUPERMARINE NAPIER "SOUTHAMPTON" FLYING BOATS
HAVE FLOWN 23,000 MILES, A GRAND TOTAL OF
92,000 MACHINE MILES;
MAKING
THE GREATEST FORMATION FLIGHT
IN THE HISTORY OF POST WAR AVIATION.
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THE FIRST FLIGHT OF ANY KIND ROUND THIS COUNTRY
AUSTRALIA
THE FIRST FLYING BOAT FORMATION FLIGHT ROUND THIS CONTINENT.
OCT 17th 1927. PLYMOUTH, ROUND INDIA TO SINGAPORE, ROUND AUSTRALIA AND BACK TO SINGAPORE. 23000 MILES WITHOUT MISHAP OF ANY KIND SEPT. 15th 1928.
OCT. 17th 1927 PLYMOUTH ROUND INDIA TO SINGAPORE. ROUND AUSTRALIA AND BACK TO SINGAPORE. 23000 MILES WITHOUT MISHAP OF ANY KIND. SEPT. 15th 1928.
THE CONSISTENT SUCCESS OF THE FOUR "SOUTHAMPTONS" ON THE R.A.F. FAR-EAST FLIGHT, HAS CREATED ONE OF THE MOST IMPORTANT MILESTONES IN AVIATION; DEMONSTRATING THE DURABILITY, HIGH EFFICIENCY, SEA AND AIR-WORTHINESS OF "SUPERMARINE" CONSTRUCTION.
ISSUED BY THE SUPERMARINE AVIATION WORKS LTD - DESIGNERS AND CONSTRUCTORS OF "SOUTHAMPTONS"

THE FLYING CLUBS.

The Associated Clubs General Council.

A Meeting of the General Council of Associated Clubs will be held at the Royal Aero Club, 3, Clifford Street, London, W.1, on Friday, Nov. 2, at 11.00 hrs.

Amongst the subjects down for discussion are insurance, future policy regarding official race meetings and the programme of official meetings for 1929.

In connection with the pooling arrangements of the Official Meetings in 1928, the Bristol and Blackpool Meetings both showed a surplus and the General Council will decide on the distribution amongst the Associated Clubs.

The Associated Clubs are the Bristol and Wessex Aeroplane Club, the Felixstowe Light Aeroplane Club, the Halton Aero Club, the Hampshire Aeroplane Club, the Lancashire Aero Club, the London Aeroplane Club, the Midland Aero Club, the Newcastle-upon-Tyne Aero Club, the Norfolk and Norwich Aero Club, the Nottingham Aero Club, the Royal Aircraft Establishment Aero Club, the Suffolk and Eastern Counties Aeroplane Club, and the Yorkshire Aeroplane Club.

The Late Major von Tschudi.

The news of the death of Major von Tschudi, Secretary of the Deutscher Luftrat, Berlin, on Oct. 8, was received with deep regret by the Royal Aero Club and a message of condolence was sent to the Deutscher Luftrat. The Royal Aero Club was represented at the funeral by Colonel The Master of Sempill and Group-Capt. M. G. Christie, C.M.G., D.S.O., M.C.

A Fatal Accident near Lympne.

Mr. G. T. Skinner, a member of the Cinque Ports Flying Club was killed near Lympne on the evening of Oct. 13 as the result of falling out of a light aeroplane.

According to Press reports Mr. Skinner failed to get over the top of an attempted loop, and after failing to right the machine fell out from a height of several hundred feet.

Mr. Skinner, who was 28 years of age, qualified for his "A" license only about three weeks ago.

Club Notes.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]
Aerodrome: Stag Lane Aerodrome, Edgware, Middlesex.
Instructors: V. H. Baker and F. R. Matthews.
Ground Engineer: C. Humphreys.
Report for week ending Oct. 14.

Flying Time: 46 hr. 40 min.; *Instruction*: 39 (26 hr. 30 min.); *Soloists*: 34 (20 hr. 10 min.).

Notes.—Mr. A. C. Thomas made his first solo flight on Oct. 14.

On Saturday, for the first time for many months, the members had the pleasure of seeing the whole of the Club aircraft on commission, but as is so often the case, the pleasure was short-lived. On Sunday, Miss Wilson, flying solo on G-EBMF, alighted in a field next to the aerodrome and ran into the fence. The machine turned completely over and considerable damage resulted, in fact, it might entail a write off. Miss Wilson fortunately escaped unhurt.

During the week-end advantage was taken of the Temporary Membership and the following members who have permission to take up passengers were busy giving flights to their friends: Messrs. M. L Bramson, E. E. Stammers, O. J. Tapper, T. Elder Hearn.

Membership.—The Club is now in a position to elect a few additional members who can take instruction during the week days.

The Lancashire Aero Club.

[Sec.: F. W. Atherton, Avro Aerodrome, Woodford.]
Chief Instructor: D. E. Hall.
Voluntary Asst. Instructors: Cantrill and Scholes.
Ground Engineers: Bartram and Chapman.
Machines in commission: 4.
Report for week ending Oct. 13.

Flying Time: 22 hr. 50 min.; *Instruction*: 21 (9 hr. 45 min.); *Soloists*: 13; *Passengers*: 15 (13 hr. 5 min.).

Notes.—Thanks to the energy of the staff and of the Flying Sub-Committee (specially Mr. R. H. Dobson) four of our five machines are now serviceable again, while the fifth only awaits minor adjustments. Avian G-EBXD has been taken over to replace G-EBRR. XD is at present fitted with slots, but these are to be removed as it is deemed inadvisable to have one machine slotted and the rest un-slotted. In her present form it appears literally impossible to lose control of XD for more than a fraction of a second. [This strikes one as a singularly wrong-headed policy. Pupils should be given dual control instruction on a machine *without* slots and should then be sent for their solo flights *with* slots. Eventually all machines will have slots just as all cars have four-wheel brakes. Few motor instructors would think, in these days, of letting a pupil loose on a skiddy day on a car with back-wheel brakes only, or of abolishing four-wheel brakes on all school cars because the school could not afford them on all cars. Think again, Messieurs of the Flying Sub-Committee, forget that you know so much about flying yourselves, and remember that the safer pupils are on their early solos the more members you will have both by addition and non-subtraction.—C. G. G.]

A number of inquiries have been received in connection with the Flying Regulations of Light Planes (Lancs) Ltd., a copy of which in printed form was enclosed in last month's issue of the *Elevator*. If any Club which has not received a copy would like to have one for comparison with its own Regulations the Secretary would be pleased to forward a copy upon receipt of a request.

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. J. Walker, The Aerodrome, Sherburn-in-Elmet
Chief Instructor: Mr. G. R. Beck.
Ground Engineer: R. Morris.
Assistant Ground Engineer: T. Houghton.
Machines in Commission: 2.
Report for week ending Oct. 13.

Flying Time: 19 hr. 40 min.; *Instruction*: 8 (6 hr. 15 mi *Soloists*: 2 (30 min.); *"A" Pilots*: 12 (12 hr. 30 min.); *Passenge* 1 (10 min.); *Tests*: 3 (15 min.).

Notes.—A wet, miserable week with very limited activities in c sequence.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]
Aerodrome: Castle Bromwich.
Instructors: Flt. Lt. T. Rose, D.F.C., and W. H. Sutcliffe.
Ground Engineer: W. J. Halland.
Assistant Engineer: G. Rees.
Report for week ending Oct. 13.

Flying Time: 32 hr. 34 min.; *Instruction*: 18 (13 hr. 55 mi *Soloists*: 21 (21 hr. 40 min.); *Passengers*: 7 (5 hr. 20 min.); *Te* 39 min.

Notes.—Mr. G. Potter, of the Brigade of Guards, started instruct during the week.

On Saturday Mr. M. C. Wilks made his first solo.

Apropos "the century without a chance" recently completed by Gough of the Norfolk and Norwich Club, we should like to pla on record the fact that one of our *ab initio* members has done o 200 hours without any untoward incident and three others have pass the hundred mark with a clean sheet. We continue to touch wood a thank the Lord for a large aerodrome.

It has been discovered this week that it is quite difficult to the tail down when landing a light aeroplane with one elevator co trol completely gone. However, LW having completed three years assorted landings and still being in the original piece made fuss over a little thing like that.—"*Gentlemen, make much of yo horses!*"

During the winter months, it has been arranged that flying sh take place every day in the week from 10.00 hr. till dusk.

The Hampshire Aeroplane Club.

[Sec: H. J. Harrington, Southampton Aerodrome, Hamble.]
Pilot Instructors: Flt. Lt. F. A. Swoffer and W. H. Dudley.
Ground Engineer: E. Lenny.
Report for week ending Oct. 14.

Flying Time: 33 hr. 55 min.; *Instruction*: 32 (16 hr. 30 mi *Soloists*: 8 (9 hr. 10 min.); *"A" Pilots*: 11 (6 hr. 15 min.); *Te and Passengers*: 2 hr.

Notes.—We were glad to welcome the following members this we all of whom have enrolled in the Pilot grade: Capts. Combe a Tweed; Messrs. Vernon, Harrison and Miller.

Mr. Coode made a successful first solo on Wednesday after 5 hou of dual instruction.

Messrs. Evershed and Whittle have now done their tests for " Licences. Mr. Whittle distinguished himself by landing fairly on t mark after his height test, during which he reached a height of nea 8,000 ft. Mr. Evershed completed his tests just a week after achievi his first solo flight.

On Sunday we were pleased to see Sir Sefton Brancker, who look in for a cup of tea and a chat. For a change he did not arrive G-EDCA, but came down by road.

On Wednesday we were visited by Flt. Lts. D'Arcy Greig a Stainforth and Flg. Offs. Atcherley and Moon, who constitute t High Speed Flight at present stationed at Calshot.

Mr. Lenny has been to Croydon and returned with a new Mark Cirrus engine from the A.D.C. Works. In consequence we hope to a considerably to our flying time.

The Norfolk and Norwich Aero Club.

[Sec.: G. McEwen, Mousehold Aerodrome, Sprowston, Norwich.]
Pilot Instructor: B. Young.
Ground Engineer: A. Kirkby.
Report for week ending Oct. 14.

Flying Time: 7 hr. 20 min.; *Instruction*: 4 (2 hr. 35 min *Soloists*: 4 (4 hr. 25 min.).

Notes.—The weather has been so diffident this week that flying h been rather unpopular and this, coupled with the fact that t machines are out of commission, has simply ruined the flying time.

Mr. C. Ransom has done all his tests for "A" Licence, after 7 hou dual and 3 solo.

It is regretted that owing to Mr. North attending the German Ae Show his lecture to the Club, which was to be held on Thursday, h been postponed until the fortnight following. Mr. Hughes is lecturi this week on the "Design and Construction of Aircraft."

Friday, Nov. 9, is the date of the Club Annual Ball, which is alwa the best of its kind in Norwich and includes a first-class Cabar show. Tickets are obtainable from the Secretary and early appli tion should be made. Single 12s. 6d., double £1 1s.

The Suffolk and Eastern Counties Aeroplane Club.

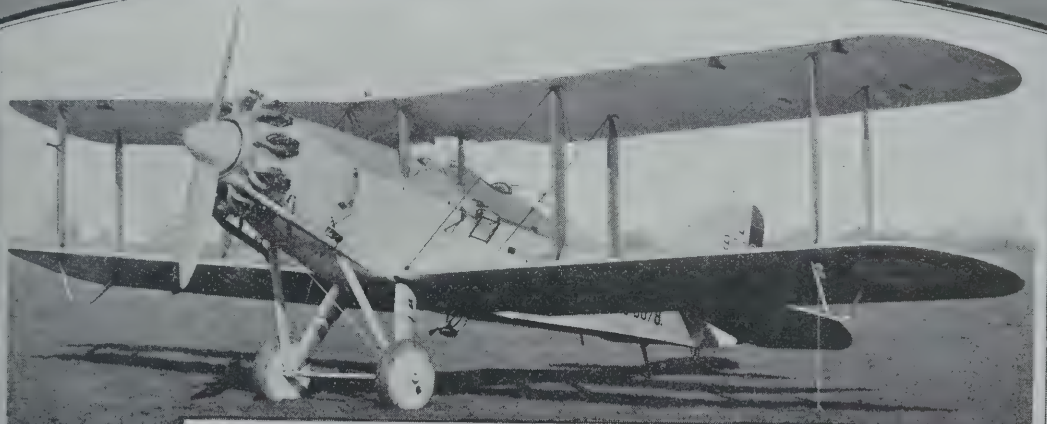
[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadleigh.]
Instructor: G. E. Lowdell, A.F.M.
Ground Engineers: "C," E. Mayhew; "A," G. Keeley.
Report for week ending Oct. 13.

Flying Time: 8 hr. 20 min.; *Instruction*: 5 (4 hr. 15 min. *Soloists*: 2 (1 hr. 40 min.); *"A" Pilot*: 1 (35 min.); *Passengers*: (1 hr. 25 min.).

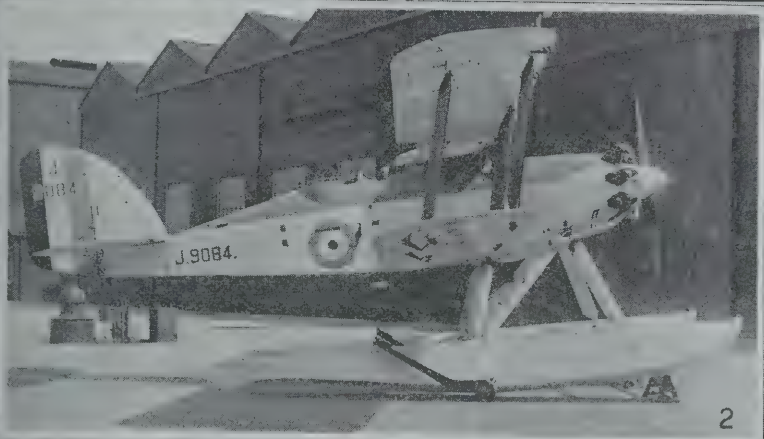
Notes.—Dr. J. C. Sleigh, accompanied by Miss Sleigh (aged six), pa an aerial visit to friends in the neighbourhood last Sunday and land in the ground to partake of a dish of tea.

We notice that Hampshire have only one aeroplane and heaps members. Our trouble is that we have three aeroplanes and only o member; or to be more accurate we have not got sufficient acti members to take full advantage of the facilities offered for learni to fly at Hadleigh. If any readers want to learn quickly they shou blow along to Suffolk.

We are arranging for a local motor-cycle club to hold a soci



WESTLAND



2

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Cirrus III or Genet Engines. (Photo No. 3).

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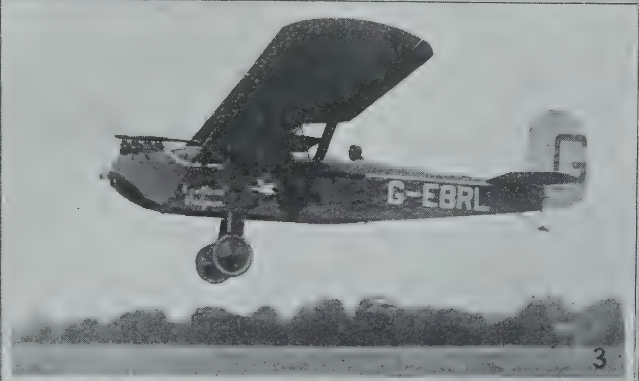

3

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The Bristol and Wessex Aeroplane Club.

[Sec.: Major G. S. Cooper, D.S.O., Filton Aerodrome, Bristol.]
Instructor: E. W. B. Bartlett.
Ground Engineer: A. W. Webb.

Report for week ending Oct. 13.

Flying Time: 17 hr. 30 min.; *Instruction*: 8 (10 hr.); *Soloists*: 2 (1 hr. 25 min.); *"A" Pilots*: 3 (4 hr. 45 min.).

Notes.—The week has been very poor for instructional flying, with a lot of rain and a rough bumpy wind.

Mr. Downes Shaw flew to Croydon and back with Major Cooper, the only long flight of the week.

We are now getting ready for what we hope will be a cheery little "At Home" on Saturday next, Oct. 20, beginning at 14.00 hr. We have issued invitations to Clubs within reasonable distance, but any representatives of Clubs which have not been invited will be very welcome. All private owners are invited. Visitors will be put up for the night by members of this Club and their machines will be housed.

There will be displays of aerobatics, joy-riding and a competition for visiting and other machines. Visitors are asked to arrive before 14.00 hrs. and to let the Secretary know as early as possible of their intention of doing so.

The Liverpool and District Aero Club.

[Sec.: Capt. Ellis, Hooton Park Aerodrome, Wirral.]
Instructor: Flt. Lt. B. Allen.
Ground Engineer: H. Pixton.
Machines in commission: 1.

Report for week ending Oct. 18.

Flying Time: 27 hr. 10 min.; *Instruction*: 18 hr. 5 min. *Soloists*: 6 hr. 40 min.; *Joy-rides*: 1 hr. 15 min.; *Test*: 1 hr. 10 min.

Notes.—The above times reflect the keenness of our flying members and staff, as poor visibility has made flying far from pleasant most of the week

On Sunday last Messrs. Keniston and Edgar were launched solo, each putting up a very good show. Mr. Edgar's landing was about the best first solo landing one has seen to date.

Mr. Howard Pixton, our Ground Engineer, is still battling with repairs and overhaul to XY. Meantime XX is totting up the hours and will be due for top-overhaul as soon as XY is back to work. Motto for Ground Engineers: "One damn' thing after another."

Capt. Ellis, our new Secretary, has taken over his duties this week, and is now installed at the aerodrome office!

The Cinque Ports Flying Club.

[Sec.: R. Dallas Brett, 114, High Street, Hythe.]
Instructor: Mr. H. G. Travers, D.S.C.
Ground Engineer: R. H. Wynne.
Machines in commission: 2.

Report for week ending Oct. 13.

Flying Time: 7 hr. 15 min.; *Instruction*: 8 (4 hr. 55 min.); *Soloists*: 2 (1 hr. 15 min.); *"A" Pilots*: 2 (1 hr.); *Tests*: 35 min.

Notes.—On Monday, Oct. 8, Mr. I. N. C. Clarke resigned the position of Pilot Instructor for private reasons, and on Oct. 12 Major H. G. Travers, D.S.C., was appointed temporarily to fill the post. The Club was most fortunate in securing the services of Major Travers. There is a possibility that he may accept a permanent appointment.

Major H. G. Travers comes from Walmer. He served in the H.A.C. from 1913 to 1915, going overseas with them in September, 1914. He was wounded in December, 1914, and on emerging from hospital he transferred to the R.N.A.S. in December, 1915, taking his certificate as a Pilot in January, 1916. After service at Eastbourne and Dover he served overseas at Dunkirk towards the end of 1916. In January, 1918, he was appointed to command No. 211 (Naval) Sqdn. He left the Service in September, 1919, and during the period from September, 1926, to December, 1927, he served as test pilot and as personal representative for Mr. Robert Blackburn at the Blackburn Co.'s depot for land and seaplanes at Phaleron, Greece. He has recently been temporary pilot-instructor to the Bristol and Wessex Club.

On Sunday Mr. Graham Mackinnon, a member from Edenbridge, did his tests for his "A" licence and passed in very good style. The Club congratulates him.

On Saturday, Oct. 13, Mr. G. T. Skinner, of Boughton Honchelsea, Nr. Maidstone, who recently passed for his "A" licence, took off in Moth G-EBSS for a solo flight, immediately after having 15 mins. dual instruction with Mr. Travers. Above Romney Marsh he did two excellent loops, after which he did a half roll. In attempting a full roll immediately afterwards, he allowed the nose to drop and the roll developed into a spin. He was still at a safe height, but it appears that he came out of the spin with a jerk and was thrown forward onto his belt, which broke near the starboard fastening. Mr. Skinner was thrown out of the machine and killed. The machine continued in a dive and fell on Selby Farm close to Mr. Skinner, a complete wreck.

The Club deeply regrets this accident to a very promising pupil, and the Board of Directors and Committee offer their sincere sympathy to Mr. Skinner's relations and friends in their great loss.

The Saskatoon Aero Club.

[Sec.: B. R. Masecar, Room 2, Royal Bank Buildings, Saskatoon.]

Report for week ending Sept. 8.

Flying Time 22 hr. 20 min. *Instruction* 10 hr. *Soloists* 4 hr. 15 min. *Observer Member Flights* 21. *Instruction.—With Mr. Bythell*—Messrs. R. Palmer, Reed, Mayne, Randall, Swinghamer, James, Klassen, Badgley, Elliott, T. Sigsworth, Yule, McCullough, Dr. McConnell. *With Mr. Mayson*—Messrs. Kerr, Reed, Morrison, Badgley, Elliott, R. Palmer, Roscoe. *Soloists.*—Messrs. Mayson, McClelland, Randall.

Notes.—Tuesday, Wednesday, Thursday and Friday, poor weather. Some days almost a washout. KG was having a top overhaul of engine, so it was not in use excepting on Sunday and Monday. This left only the one machine to carry on.

Special Notes.—On Sept. 3 Saskatoon's first Aerial Meet was held. Over 5,000 people attended. The fences surrounding the grounds were crowded with spectators. Pilots Jack Bythell, Dick Mayson and Stan McClelland were in charge of the 'planes and alternated at the controls throughout the afternoon. All three showed their abilities as pilots, landing and taking off with ease, and going through their stunts without the semblance of mistakes. Both Pilots Mayson an McClelland have taken refresher courses at the Club.

On Sept. 6, we were visited by the Lord Thomson, D.S.O., who wa Secretary of State for Air in the Ramsay McDonald Cabinet.

The Montreal Light Aeroplane Club, Inc.

[Sec.: W. H. Campbell. 388, St. James Street, Montreal, Canada

This club was one of the first formed in Canada under the Gover ment Scheme, and took delivery of its first D.H. Moth (Mk. Cirrus) on May 12, Mr. F. G. W. Sparks, Chief Instructor, flying th machine from Camp Borden with Mr. Jaques Cartier, a director the club, as passenger. On arrival at the aerodrome the President, M W. S. L. Lighthall, the Vice-President, Mr. L. S. Jean, and sever directors of the club went up as passengers, and instruction bega

The club got its second D.H. Moth (Mk. II Cirrus) on May this machine being collected from the De Havilland Aerodrome Toronto by Mr. Sparks, with Mr. Frank McGill, a director.

These two machines have been given to the club, under certai conditions, by the Canadian Government.

The club having 161 flying members and 58 associate members (no flying members, permitted to have passenger flights), it was soo decided that another machine was necessary and that an assista instructor should be appointed. A further Moth (Cirrus) was ordere and delivered direct to St. Hubert Aerodrome on July 16 by the D Havilland test pilot, who carried Mr. C. Gordon Brown, a director.

The club having bought this machine, it will be entitled to further machine from the Canadian Government and it will b allotted to the club during the year. This will bring the strengt of the club's machines to four D.H. Moths, all with Mk. II Cirrus but the club is contemplating buying yet another Moth.

The club is fortunate in being able to operate from St. Huber Aerodrome, which will be the main air port of Canada. The aerc drome is at present being very thoroughly tile-drained and the surfac most carefully prepared. Excellent roads are being made an adequate hangars, offices, etc., are to be erected. Custom officials ar always present.

The aerodrome has an excellent main road to it, and already has it private railway siding. And when the work is completed the aerc drome will compare favourably with any in the world, comprising a it does some 750 acres of dead level ground in ideal flying country

Air mails are already regularly operating from it.

Fairways are being prepared which will withstand any weathe conditions, to enable daily flying to take place. Except for thos aerodromes that have sandy sub-soil, winter conditions and thaw require elaborately prepared fairways to enable daily flying. Sanc however, has distinct disadvantages, wind being the greatest enemy causing dunes and pot-holes.

The club this season has been badly handicapped by the very we and windy Summer, and in the period May 12 to Aug. 31 flying wa impossible on 30 days and badly interfered with on 16 days. Nex Summer, when the work on the aerodrome will be completed, th weather should not interrupt flying so badly.

Mr. Spooner arrived in Montreal on Aug. 25 to act as assistan instructor, and the returns should make more satisfactory reading.

Mr. Sparks has very kindly been given assistance in the evening and at week-ends by Capt. Trim, Mr. R. H. Foss and Mr. O. C. S Wallace.

Up to Aug. 31 the club had done 470 hr. 25 min. flying, of whic 328 hr. 5 min. were dual instruction, 92 hr. 10 min. solo, and th balance 50 hr. 10 min. was made up with passenger and test flights.

The club already has 35 soloists, 23 being old pilots who, after re fresher lessons, are regularly doing solos, and 12 *ab initio* soloists including one woman. Further, 78 members are under instruction an some 18 are ready for solo and awaiting favourable conditions.

Soloists.—Old Pilots: Capt. Trim, R. H. Foss, L. J. St. Jean, W. S Lighthall, E. F. Peacock, G. C. Upson, P. S. Fisher, O. C. S. Wallace H. H. Cotton, J. G. Ireland, D. Cushing, J. H. Badgley, Lawson Williams, E. C. R. Stoneman, C. Dixon, L. R. Lavigne, P. Pinel M. J. Berlyn, H. St. Martin, P. Thibandeau, R. F. Burnett, P. G Lewis, J. E. Lytell. *Ab initio*: J. W. McConnell, Jnr., E. B. F Reddy, Mrs. E. B. F. Reddy, N. Ranger, G. H. Dorais, D. Vachon H. G. Marpole, L. Knight, L. J. Beaudoin, G. L. Ballantyne J. Ballantyne, J. Cawley.

Mr. McConnell and Mr. Marpole have passed their flying tests fo their Private Pilot's Licence. An interesting item was that Mr. an Mrs. E. B. F. Reddy made their first solos on the same afternoon after just over 7 hours' instruction.

The clubs sponsored the Montreal Aircraft Exhibition which wa held at The Drill Hall, Craig Street, Montreal, and was the firs Aircraft Exhibition to be held in Canada. It created great interes and was very well supported and is to be held annually.

Mr. Trenholme, Mr. Cushing, Mr. Marpole, and Mr. Lawson William jointly with Mr. Badgley, own their own D.H. Moths. Mr. L. J Beaudoin daily expects delivery of a Gipsy Moth, and many member contemplate buying machines in the near future.

The 12 *ab initio* pupils averaged 7 hr. 20 min. dual instruction an this average should be maintained if the high standard continues.

Only very minor mishaps have befallen the club's machines, an these were at soloists' hands when the aerodrome was wet or bein worked on. No engine trouble of any kind has been experienced.

The club, for very reasonable fees, provides private hangars an gives service to member owners.

School Notes.

The Henderson Flying School.

[Managing Director: Lt.-Col. G. L. P. Henderson, Brooklands Aero drome, Byfleet.]

Report for week ending Oct. 11.

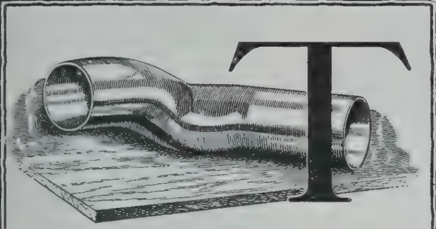
Flying Time: 21 hr. 55 min.

Notes.—In spite of the approach of wintry weather a number o pupils have joined us during the last week, their names being,—Messrs. Eggar, Ensor, Bramwell, Ford, Koratkar, and Cdr. Bower.

On Oct. 5 the School provided five machines of various makes for cinematograph stunt which gave considerable amusement to the parti cipants in spite of a number of unavoidable delays.

Mr. J. L. May's Mono-Avro is now finished and is a success.

At your Disposal!



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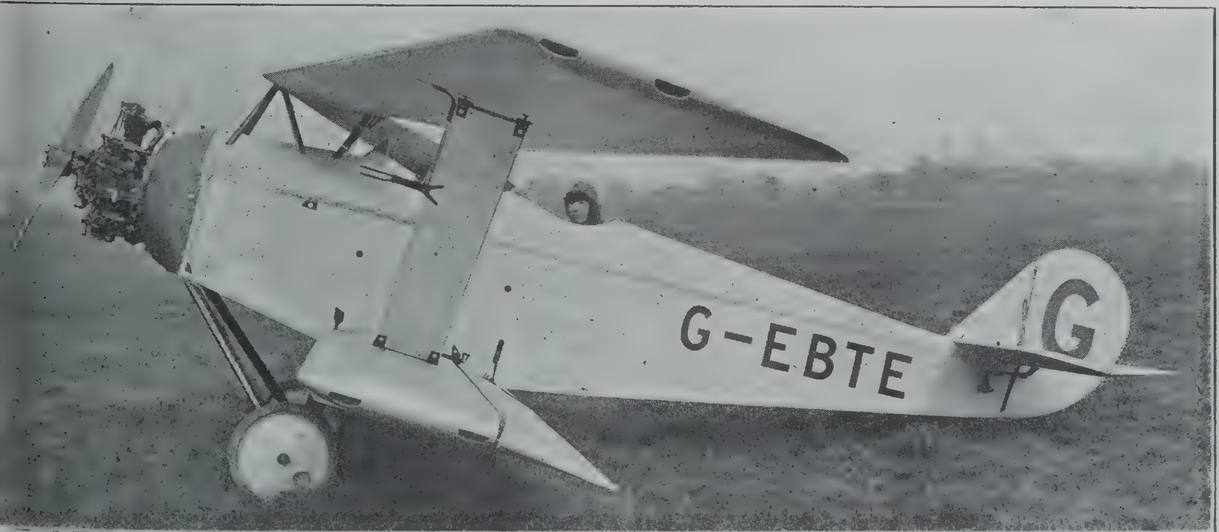

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 8; Monday, 16; Tuesday, 19; Wednesday, 22; Thursday, 19; Friday, 17; Saturday, 22.

Imperial Airways Ltd. :
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return : Machines 56, passengers 473, freight 23 tons.

Air Union :
Paris—London and return : Machines 30, passengers 138, freight 14 tons.

K.L.M. :
Amsterdam—Rotterdam—London and return : Machines 12, passengers 82, freight 4¾ tons.

Sabena :
Brussels—London and return : Machines 11, passengers 19, freight 2 tons.

Deutsche Lufthansa A.G. :
Amsterdam—London and return : Machines, 9, passengers 32, freight 2 tons

Miscellaneous :
British machines 5, passengers 4.
Foreign machines 0, passengers 0.

Total number of trips by British Machines, 61, carrying 480 passengers. Foreign Machines 62, carrying 271 passengers.

COMPARATIVE FIGURES.

Week ending Oct. 13 :
Machines, 123; Passengers, 751; Crews, 242; Total personnel, 993.
Corresponding week, 1927 :
Machines, 108; Passengers, 621; Crews, 198; Total personnel, 819
Corresponding week, 1926 :
Machines, 65; Passengers, 262; Crews, 79; Total personnel, 341.
Corresponding week, 1925 :
Machines, 96; Passengers, 346; Crews, 122; Total personnel, 468.
Corresponding week, 1924 :
Machines, 86; Passengers, 370; Crews, 114; Total personnel, 484.
Corresponding week, 1923 :
Machines, 84; Passengers, 232; Crews, 131; Total personnel, 363.
Corresponding week, 1922 :
Machines, 89; Passengers, 261; Crews, 151; Total personnel, 412.
Corresponding week, 1921 :
Machines, 66; Passengers, 226; Crews, 87; Total personnel, 313.
Corresponding week, 1920 :
Machines, 90; Passengers, 160; Crews, 104; Total personnel, 264.

Croydon Notes.

Experimental draining operations which have been in progress for some time on the edge of the concrete just outside the main buildings have just been completed. These involve the laying of a multiplicity of drain-pipes a foot or so below the surface, and the filling in of the space above them with a compost that will remain porous. It is to be hoped that the experiment may prove a success, but grave doubts are felt as to how porosity and resistance to tail-skids can be combined.

Apropos tail-skids, the hopes of those responsible for the state of the aerodrome, raised by the equipment of the Vanguard with wheel brakes and a tail-wheel, have been depressed by the removal of the brakes and the return of the tail-skid on this machine. This set-back however is likely to be but temporary—the brake and tail-wheel combination in itself was satisfactory enough, but the tyres would not stand up to the strains imposed on them. [Presumably they were old tyres which had been standing for long periods without exercise, while the machine has been left unused. Rubber needs exercise like a human being, and one can quite understand that the new tangential strains set up by powerful brakes on partly perished rubberised fabric *would* cause trouble.—Ed.]

Whether the trouble was the result of creeping on the rims and cutting of the beads or merely direct failure of the walls is known only to a select circle, but no doubt is felt that tyres which will stand brakes will shortly be available for even heavier machines than the Vanguard.

All those who know the series of caricatures of aerodrome personalities which adorn the staff-parlour in the Aerodrome Hotel will be interested to learn that Mr. Dickson has recently added to that series. Even the caricatured admit that the artist has succeeded in all but their own cases, and though some are better than others all are remarkably clever. These new sketches are now being framed and will shortly be added to the decorations of the hotel.

There are rumours of impending proceedings by residents in the neighbourhood of the aerodrome against some or other of the air line operators with a view to securing an injunction to restrain them from causing a nuisance by flying over their houses. Any such action cannot fail to be interesting, and may put the Air Ministry into a very difficult position.

But if the matter ever does come into Court everybody prays that the local District Councillor who has repeatedly seen Argosies crossing Stafford Road *below* the Tramway Co.'s trolley wires (so *he* says) will be called upon to give evidence.

FLYING TESTS WITH GEARED ENGINE

In accord with the firm's policy of putting new types engines through extended flight tests, the Bristol Aeropla Co. have recently completed tests covering 150 hours' flyi on their new type of Bristol Jupiter (Series VIII) gear engine.

This was fitted in a Bristol Bloodhound biplane and t tests were made so as to discover the most suitable co pression-ratio for a high-compression geared air-cooled e gine and also to test a suitable exhaust system for a gear engine.

The result of these tests was that the 5.8 compressi ratio was selected.

Considerable development work was found to be necessa on the exhaust ring, because with the 2-to-1 reduction ge the cooling slip-stream was not as efficient as with t ungeared engine. Accordingly the area of the exhaust-ri and outlet-pipes had to be considerably increased and mo fied as compared with the ungeared engine, so as to me the official requirements of the Fire Prevention Committe Consequently the exhaust-ring area has been increased 24.5 square inches and double outlet-pipes have been p vided for each cylinder.

It is interesting to note that with the Bloodhound machi considerable increase in performance was registered with t geared engine as compared with the ungeared type. F instance, at 5,000 feet the increase in speed was over miles per hour, or approximately 10%.

CRUELTY TO AEROPLANES

The Hon. David Tennant flying a De Havilland Mo (Cirrus Mk. II engine) left Stag Lane on Sunday with tw passengers in the back cockpit, of whom one, Mrs. Tenna was seated on the knees of the other, Mr. Brian Howard.

The machine landed at Lympne to clear Customs for trip to France. The aerodrome officials however refused allow him to proceed thus loaded, and Mr. Tennant therefo made two trips across the Channel to St. Inglevert to fer his passenger, and then proceeded, presumably *à trois* Le Bourget,—French regulations being less careful for t individual than British.

A NEW ITALIAN AEROPLANE SERVICE.

The Times announces that a new Italian seaplane servi from Naples to Barcelona by Genoa, and Palma (Majorc is to start soon. This service will run in connection with t Trieste—Genoa—Marseilles line and will link up with a ne service on the route Zara (Dalmatia)—Trieste—Venice—Pav —Turin.

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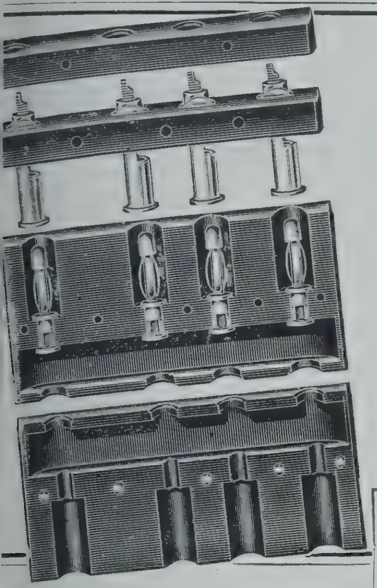

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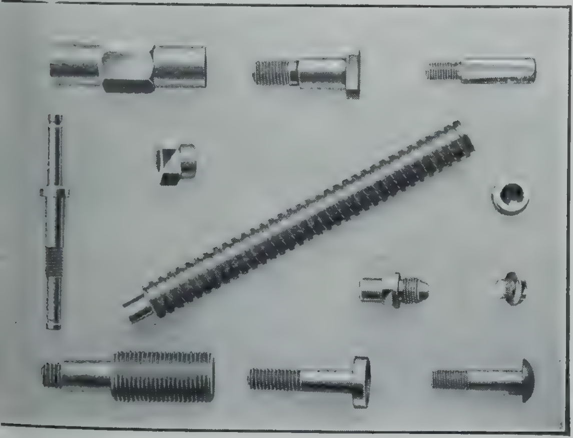

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METALLISED AIRSCREWS.

Mr. Einstein, the inventor of a process whereby coats of almost any metal may be deposited on almost any material, has just produced a metallised airscrew. The specimen at present in being is a standard wooden screw for a Cirrus-engined Avro Avian entirely sheathed in chromium.

This metal coating seems to be uniform, tenacious, and thick enough to protect the airscrew from any damage by rain, hail or spray. The cost of coating is said to be so small as to add little or nothing to the selling price of the screw, and the added weight (7 lbs.) is approximately that of brass-tipping. The inventor claims that the whole screw is lighter than any metal airscrew yet made for a machine of this type.

Mr. Einstein claims that such tests as have been made on the airscrew have failed to show any sign of the metal coating parting from the wood, and though, so far, he has not been able to spin the particular sample up to excessive r.p.m. it is, one understands, to be submitted to such a test as soon as possible.

Coats of metal deposited by the Einstein process adhere to wooden or even fabric surfaces to an extent which, the inventor claims, cannot be equalled by any ordinary electro-depositing system. Reports by eminently respectable authorities in this country suggest that the process in question overcomes the difficulties which have defeated earlier attempts at coating airscrews and the like with metal, by electrical methods, so that this form of protection may prove to be valuable.

Reference was made to this process in THE AEROPLANE when the people who were responsible for British Airships Ltd. proposed to run it as a side-line.

AIRCRAFT OPERATIONS IN SOUTH AMERICA.

The work of the Aircraft Operating Co. Ltd. in South America is expanding to such an extent that Major H. Hemming, A.F.C., F.R.G.S., A.F.R.Ae.S., the Managing Director of the firm, has had to go to Rio de Janeiro to deal with affairs on the spot. In the meantime Major C. Kennedy-Cochran-Patrick, D.S.O., M.C., F.R.G.S., A.F.R.Ae.S., who is a Director of the firm, is home from Rhodesia, and is looking after those branches of the Company's business which are usually under the immediate control of Major Hemming.

The Company's operations in South Africa are now under the direction of Major R. A. Logan, late R.A.F., and formerly of the Fairchild Company of America. Altogether the Company's activities are increasing at a highly satisfactory rate, and there is every prospect that before long a considerable increase in personnel will be needed.

A NAPIER BOOKLET.

D. Napier and Son Ltd. have made a careful study of the art of advertising, as their method of publicity shows. Nothing could be more elegantly produced or make more interesting reading than their latest booklet on the Series XI Napier aero-engine. For the benefit of their foreign customers and prospective customers, the booklet is printed in French, German and Spanish as well as English.

Besides full details of the engine a history of the Napier Lion and its achievements is given, with illustrations of the types of machines fitted with Napier engines. D. Napier and Son Ltd., Acton, London, W.3, will be pleased to send a copy of the booklet to any responsible person concerned with aircraft who desires one, but as the number available is limited, readers are advised not to delay their applications.

NEW COMPANIES.

THE BROOKLANDS SCHOOL OF FLYING LTD.—Private Co. Registered Oct. 12. Capital, £3,000 in £1 shares. Objects: To carry on the business of instructors in aviation, aerial navigation, aerial and ground signalling, etc. The directors are: H. D. Davis (chairman), Brooklands Aerodrome, Byfleet, Surrey. H. S. Hamilton, Brooklands Aerodrome, Byfleet, Surrey. L. R. Oldmeadow, address not stated. Solicitors: Richard Brooks and Son, 11/12, Finsbury Square, E.C.2. Registered Office: Brooklands Aerodrome, Byfleet, Surrey.

AIRWORK LTD.—Private Co. Registered Oct. 11. Capital, £45,000 in £1 shares. Objects: To carry on the business of manufacturers of and dealers in aeroplanes, flying machines, airships and craft, balloons, aerial conveyances of all kinds, and the component parts thereof, garage and hangar keepers, aerodrome proprietors, cinematograph proprietors and film makers, etc. The first directors are: H. N. St. Valery Norman, 30a, Belgrave Mews South, S.W.1 (chairman). F. A. I. Muntz, 50, Chepstow Villas, Notting Hill, W.11. Sec.: F. A. I.
Solicitors: Pettit, Walton and Co., Leighton Buzzard.

SATISFACTIONS.

A.D.C. AIRCRAFT LTD.—Satisfaction in full on Oct. 2, 1928, of d
dated Jan. 16, 1925, securing £133,434 7s. 10d.

CIRRUS AERO-ENGINES LTD.—Satisfaction in full on Sept. 14,
debentures date Mar. 25, 1927, Feb. 1, 1928, and Feb 21, 1927,
£5,000, £3,000 and £8,460 respectively.

PERSONAL NOTICES.

DEATHS.

MALET.—On Oct. 8, at Langley Close Bungalow, Fawley
Francis Ivo Rivers, dearly loved second son of Sq. Ldr. H
Malet, aged six years.

LOUD.—On Oct. 11, at Hendon, as the result of a flying
Cpl. Christopher Loud, No. 12 (Bombing) Sqdn., R.A.F.

SOMERVELL.—On Oct. 11, at Hendon, as the result of
accident, Flt. Lt. William Edmund Somervell, A.F.C., No. 12 (
Sqdn., R.A.F.

Flt. Lt. W. E. Somervell, A.F.C., was born in 1892 at Elisa
Odessa, and was educated at Malvern and Sandhurst. He ent
Royal North Lancashire Regiment in March, 1915, and was
to the Royal Flying Corps in August, 1915. In September
same year he was posted to No. 2 Sqdn., R.F.C., then stat
Hesdigneul, and employed on Artillery Co-operation with the
In January 1916, he was wounded and made a prisoner-of-war.
transferred from Germany to Holland in July, 1918, and repat
November, 1918. In August, 1919, he resigned his Regular Ar
mission on appointment to a permanent commision in the R.A
the rank of Flying Officer. In April, 1920, he was posted
School of Technical Training (Boys) at Halton, and in Februa
he was posted to No. 5 (Army Co-operation) Squadron, Quetta.
promoted to be Flight Lieutenant in January, 1922. He was
the Air Force Cross in the King's Birthday Honours of 1925
August, 1925, he was posted to No. 4 (Army Co-operation) S
after a few months at the School of Army Co-operation. In D
1925, he was posted to No. 2 (Army Co-operation) Squadron
ston, and in February, 1927, he was posted to No. 12 (B
Squadron at Andover.

A friend of Flt. Lt. Somervell writes as follows:—

Flt. Lt. William Edmund Somervell, known to his inti
the Service as "Chaps," was one of the best fellows that ev
By those of his brother officers who had the privilege of hi
ship during service in India in the years immediately after t
and subsequently in England, "Chaps" will always be rem
for his kindliness, light-heartedness, unfailing cheerfulness a
fellowship. It is, perhaps, surprising that these qualities sho
dominate in one who had endured the trials of captivity in
during the War. Nevertheless it was so. "Chaps" was ne
thing but cheerful in fair weather and foul. He was trem
keen at work and at play and he was a thorough sports
India he used to spend his periods of leave shooting big ga
small, while for collective games in the Squadron he invariabl
out in the field to cheer his side on from the touch line. "
was always to be relied upon and was never known, even unw
to let anybody down, be they his superiors or his juniors.
generally regarded by all who served with him as an out
example of the best type of Squadron Officer. "Chaps" has jo
Great Majority and his cheery personality will be sadly mi
his friends, but he has left to us an example which we sh
well to emulate.—C. J. S. D.

MARRIAGE.

CULLINAN—GLASS.—On Sept. 1, in London, Dr. J. H. Cullin
Off., R.A.F. Medical Service, to Marie Louise, eldest daug
Mr. and Mrs. R. Glass, of Highgate, N.6.

FORTHCOMING MARRIAGES.

ADDAMS.—THISTLETHWAYTE.—The engagement is an
and the marriage will shortly take place, between Mr. James
Addams, Royal Air Force, eldest son of Mrs. Inez Addams, o
end, Esher, and Mrs. Nettie Thistlethwayte, of Larchfield, St.
Hill, Weybridge.

BANKS—BLACK.—An engagement is announced betwe
Leonard Glover Banks, late R.A.F., younger son of Mr. a
C. H. Banks, of Clarendon Place, Leeds, and Miss Dorothy
eldest daughter of Mr. and Mrs. Black, of Killochy, Hudders

BLOOM—OWEN.—The marriage arranged between Mr. G. F.
Bloom and Miss Barbara Owen will take place at the Churc
Martin-in-the-Fields, Trafalgar Square, at two o'clock on No

BIRTHS.

BENNETT.—On Oct. 13, at the Ridgway Nursing Home, Wi
to Jacqueline, wife of Leslie V. Bennett, R.A.F.—a son.

BOTTOMLEY.—On Oct. 10, at The Grange, Johnstone, Renfr
to Sq. Ldr. and Mrs. N. H. Bottomley—a daughter.

DIGBY JOHNSON.—On Oct. 10, at Old House, Rushall, to
(*née* Beeching), wife of Sq. Ldr E. Digby Johnson, R.A.F.—a d

SUTCLIFFE.—On Oct. 3, at the Norlands Nursing Home, Er
to Betty, the wife of W. H. Sutcliffe, Assistant Instructor, The
Aero Club—a son.

WINGFIELD.—On Oct. 10, at Lincoln, to Dorothy, the wife
Off. C. P. Wingfield, R.A.F.—a son.

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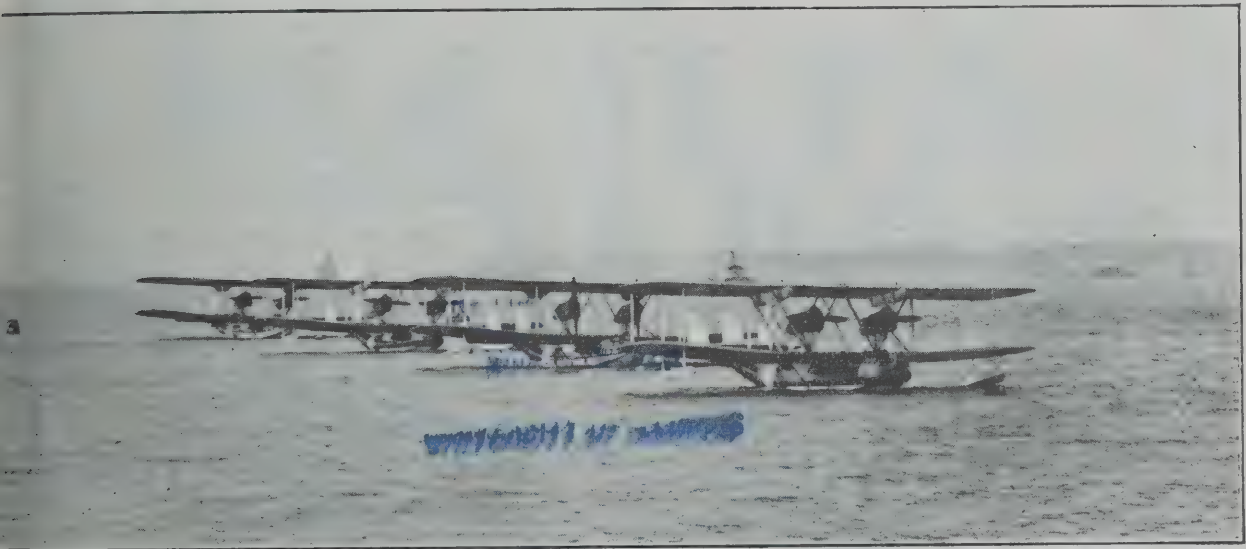
THE AEROPLANE—OCT. 24, 1928.

AT THE ILA.

THE AEROPLANE
INCORPORATING AERONAUTICAL ENGINEERING
Edited by C. G. Grey

Vol. XXXV. No. 17. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"SNORTING UNDER BONNETS FOR A BREATH OF OPEN SEA."
Kipling.



COASTAL PATROL:—A flight of Supermarine Southampton flying boats (Napier Lion engines) moored off Calshot.

Lady Heath
for her Solo, British
altitude record
in the
D.H. Moth Aeroplane
(Cirrus engine)
Oct. 4, 1928,
chose to—

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THE WORLD'S PREMIER
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A V 8.

OCT. 24, 1928.

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Incorporating
Aeronautical Engineering

VOL. XXXV No. 17.

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ON GERMAN AERO ENGINES—AND OTHERS.

ing that brief but lamentable and unavoidable inter- dispute, known officially as the Great War, which during 1914-18 between the Teutonic and the Anglo- branches of the Nordic, Gothic or Caucasian Race ıever you care to call it), with the Frankish and Lom- sub-divisions thrown in—plus some odd millions of erraneans, Slavs, Muscovites, Turanians, and assorted ed folk, as auxiliaries on both sides—there was a period both German and British aviators said that a German ıever afraid of being let down by his motor and an shman was never afraid of being let down by his aero-

superficial proof of the truth of this statement was o many of our aviators were forced to land owing to e-failure on the German side of the fighting line and taken prisoners, and that so many of our aviators saw ings and tails break off German machines in the air. nly we lost far more aviators as prisoners than did ermans, and certainly fewer of our machines broke in ir than did theirs. But there were other reasons for facts.

the first place we were attacking nearly all the time he Germans were on the defensive. So naturally our rs were over their side of the line in greater numbers theirs were over our side. And so, even if engine- es had been equal we should have lost more men.

ondly, the almost continuous West wind helped a Ger- home if he suffered from a defective engine, whereas vented our people from reaching the lines. Moreover, ight started over the lines, the West wind drifted the scrimmage bodily over German territory and so any- whose engine went wrong was forced to land there.

rdly, unless one is very much mistaken, we had by iddle of the War, many more aeroplanes and men in the an had the Germans. And so, other things being equal, ere bound to lose more.

to the breakage of machines in the air,—The German ft manufacturers became very short of raw material after the War began, and so they used structural ods which we, with our almost unlimited supplies, did llow. Spars and airscrews in German machines were up of short lengths of wood where we insisted on single . The Germans used welded steel tube largely, long this method of construction had reached its present of reliability. And, owing to scarcity of supplies, d by Germany being virtually in a state of siege, all sorts of *ersatz* (otherwise 'take-place' or 'make-it-do') material and methods were used.

With such material and methods the Germans used motors which, on the average, were bigger and heavier, and more powerful than ours, and had fewer cylinders. They used the 6-cylinder-in-line Mercédès and Benz and Argus and B.M.W. water-cooled. We used the 8-cylinder Raf (Royal Aircraft Factory) V-type, air-cooled,—which later appeared in a 12-cylinder form. And we had 8-cylinder V-type Hispano-Suisas, and 12-cylinder V-type Rolls-Royces.

Also we used many more light rotary motors than did the Germans. Most of our light fighting machines had Gnômes and Le Rhônes and Clêrgets, and, later on, Bentleys. The Germans used their big 6-in-line jobs for their single-seat fighters, except for a few rotaries built on the lines of the Gnôme.

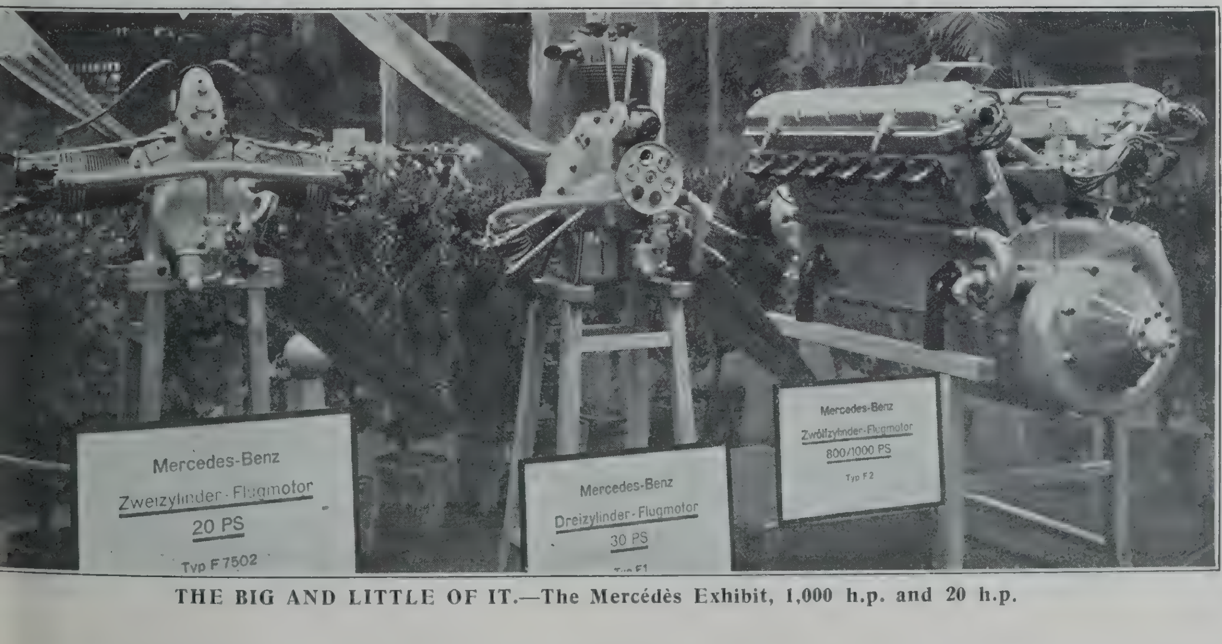
SOME ANCIENT HISTORY.

Even before the War German motors had won a high reputation for reliability. Such pilots as Boehm, Basser, Landmann, and Suvelack, had made flights which would be fine performances to-day. Boehm had flown, for the first time in history, more than 24 hours' non-stop,—this record is still not officially homologated, thanks to the pettiness of the so-called *Fédération Aéronautique Internationale.* Suvelack had flown, with a passenger, over 1,000 miles in a straight line non-stop.

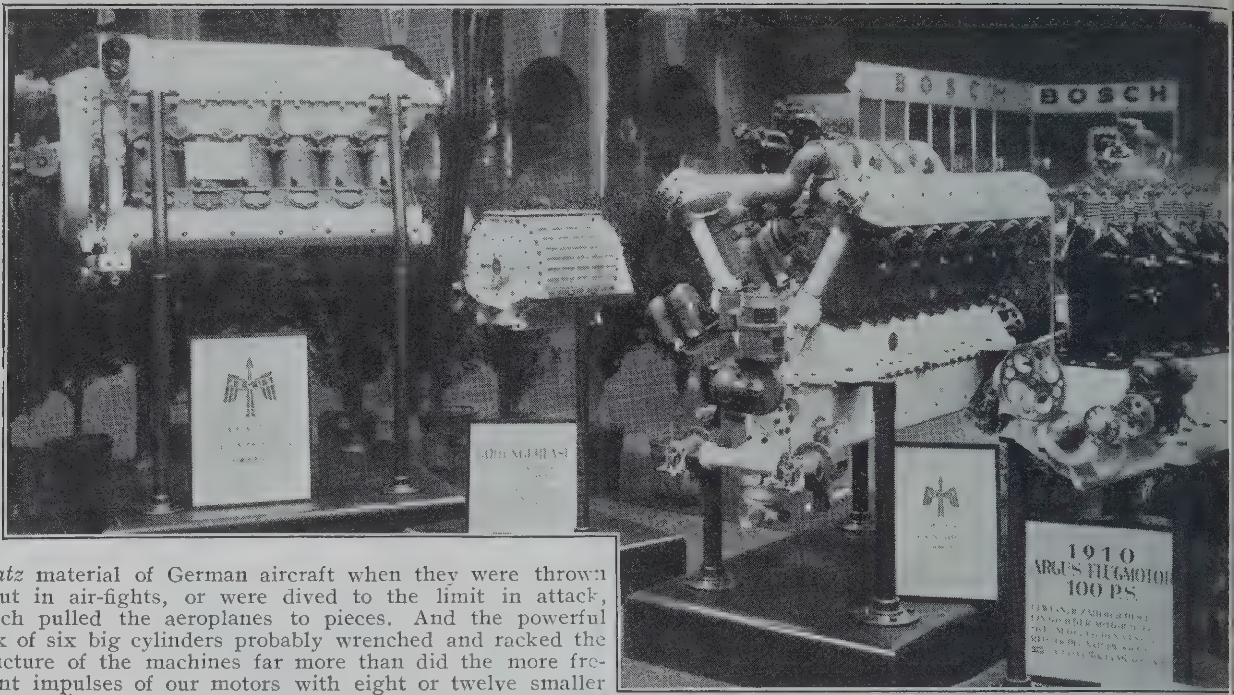
We, on our part, had no reliable motors at all, except for the Beardmore-built Austro-Daimler,—from which descended the fine reliable 160 h.p. Beardmore, the B.H.P. (Beardmore-Halford-Pullinger) and eventually the famous Siddeley Puma. We depended at first entirely on rotaries bought from the French, and on the Raf (a badly-modified copy of the 8-cylinder V-type Renault), one of the most unreliable motors ever built.

Later the famous Rolls-Royce firm produced the 12-cylinder V-type Falcons and Eagles, as reliable as anything in the War, and far smoother in their running than any engine with fewer cylinders. The Raf engine, thanks largely to being built and improved by the Napier people—who had not yet produced the Lion—became reliable. The Bentley rotary, whose descendant is the luxurious Bentley car, came out and beat all the French rotaries. And at the finish we had plenty of motors as reliable as the Germans', besides being considerably lighter.

On the other side, there is no doubt that the big heavy German motors, reliable as they were, put strains on the



THE BIG AND LITTLE OF IT.—The Mercédès Exhibit, 1,000 h.p. and 20 h.p.



satz material of German aircraft when they were thrown bout in air-fights, or were dived to the limit in attack, which pulled the aeroplanes to pieces. And the powerful kick of six big cylinders probably wrenched and racked the structure of the machines far more than did the more frequent impulses of our motors with eight or twelve smaller cylinders.

Consequently, on the whole, there was good reason during most of the War for regarding the majority of German motors as being more reliable than our own. And there was equally good reason for regarding our aeroplanes as more trustworthy than theirs,—even though at certain periods, thanks to lack of that interference by Government experts which hampered our aircraft designers, German aeroplanes such as the Albatros, Fokker and Roland had a far higher performance than ours.

After the War the oppressive conditions of the Treaty of Versailles put an end to the production of German aero-motors for some years. The Germans were forbidden to build motors of more than a certain horse-power,—one forgets the figure, and it does not matter now. But the German motor-designers did not waste their time sitting idle. With characteristic thoroughness they carried on with research work, or experimented with low powers. The result is that to-day—as the display of German motors at the Ila shows—the removal of the restrictions of Versailles sees the German Motor Industry ready to compete on level terms with the aero-engines of the rest of the World.

German Enterprise.

Dr. Junkers, always among the boldest in striking out from conventional methods, has produced a big motor which uses heavy oil and works on the full Diesel principle of self-ignition by compression. It is as far away from ordinary ideas of aero-engines as are his all-aluminium alloy aircraft from ordinary aeroplanes. It works, and it is said to have flown.

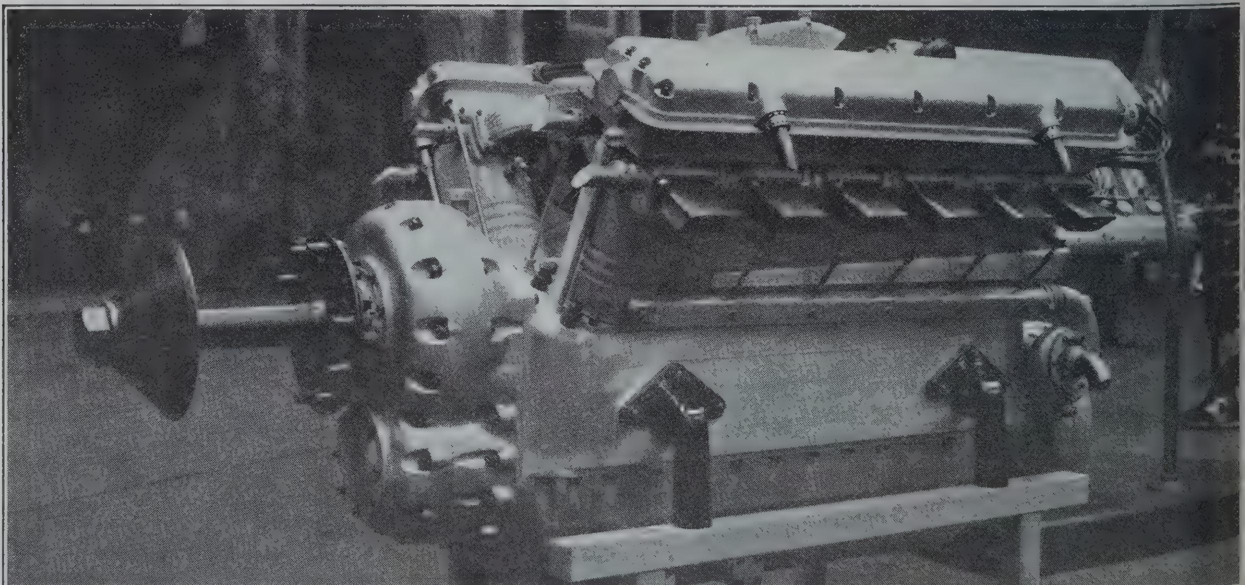
OLDEST AND NEWEST.—The Argus Exhibit, showin the 4-cyl. type of 1910 and the inverted 12-cyl. V-typ of 1928.

Also the Junkers firm are making petrol-engines of n conventional type which are as reliable as the best. of them took the *Bremen* from Ireland to Newfoundland Labrador), which proved the engine to be reliable, e though the flight was unnecessary and merely demonstr that by air one can travel from an undesirable place to which is even less desirable. Other Junkers aero-eng have, in Junkers aeroplanes, set up World's Records weight-lifting and duration and distance which put th definitely among the World's best motors.

The aero-engine department of the great Siemens fi World-famous for its electrical machinery, was reduced a the War to experimenting with the little Siemens-Ha static radial air-cooled motors. They were sound and liable but did not put up any astonishing performances.

Now, besides these small radials, ranging from 60 to 125 h.p., the Siemens-Halske Aktien Gesellschaft building Bristol Jupiters under license from the Gnô Rhône firm in Paris, who hold the sole rights for the Bri engine designs for all Europe except Scandinavia. presumably by way of showing complete independence French control, the Siemens Works have produced a very Siemens Sternmotor (star-motor), a 9-cylinder job gi 560/600 h.p. and a handsome job it is.

The Mercédès firm—the Daimler Automobil Gesellsc of Cannstadt, the pioneer of all motor firms—after the returned to the manufacture of motor-cars, a business



AN OLD FRIEND IN NEW GUISE.—The 1,000 h.p. Mercédès-Benz.

"As a demonstration of reliability the flight will rank as one of the great feats in the history of aviation."

DAILY MAIL
16 Sept., 1928

THE above refers to the reliability flight carried out by four Supermarine-Napier "Southampton" flying-boats of the Royal Air Force.

Flying in formation these aircraft flew from England to Australia and back to Singapore without engine trouble. A total of 184,000 engine miles.

The engines selected were standard Napier Lions—not specially tested but taken from Stores in the usual way.

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the tried and proved

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which long before our disagreement the name Mercédès had won legendary status among motorists. The firm's designers experimented with superchargers, on which some work had been done for aero-engineering during the War. And there are experienced motorists who hold that the supercharged Mercédès car of to-day is the finest thing of its kind.

Meantime, on the aero-engine side, the firm,—which had after the war amalgamated with the Benz company, whose war-time aero-engines and pre-war cars were almost as famous as the Mercédès,—was apparently playing with a little two-cylinder double-opposed horizontal pop-bottle engine of the kind used on the Klemm-Daimler light monoplanes, and similar to our Bristol Cherub or A.B.C. Scorpion.

Now, at the Ila, the Mercédès-Benz combine present a 12-cylinder V-type engine of 1,000 h.p. Here is a worthy successor to the great war-engines of 1914-18. And manufacturers in other countries will do well to watch it.

Another old-timer which returns to the air is the Argus firm. The war-time Argus was a worthy companion of the Mercédès and Benz. The new peace-time Argus seems likely to be a worthy competitor. It is a 12-cylinder V-type inverted. And it is supercharged. Its power was not stated. But it should be in the 1,000 h.p. class, judging by its size.

Alongside is a beautifully show-shined sample of the old 100 h.p. Argus of the year 1910. This veteran looks quaint, with its external cam-shaft. But it worked well in its day. And its successor is worth consideration.

Last, and far from least, among German firms, the B.M.W. (Bayerische Motoren Werke) must be mentioned. They have the largest exhibit of all motor firms at the Ila, and the most varied.

Towards the end of the War the B.M.W. aero-engines, of which nobody had heard before the War, won a reputation which ran them close to the Mercédès and Benz. Some of our experts here, whose duty it was to test captured motors, held that the B.M.W. was a more refined job than its rivals, and more in accord with our ideas of lightness and strength.

Certainly nobody could wish to see a better-looking piece of work than is the latest B.M.W., of 600/755 h.p.,—a 12-cylinder V-type water-cooled engine, supercharged and with an airscrew gear of the Farman type. Its finish is superb, even allowing that it is a show-sample.

And, just to show freedom from prejudice,—or perhaps because of a wise desire to be able to come in out of the rain if needs be—the B.M.W. are now making Pratt and Wh (U.S.A.) radial air-cooled engines under license. The P W. Hornet which they show is up to the best American ducts so far as workmanship and finish is concerned.

Air-cooled Radials.

Incidentally there is much interest in the way in high-power radial air-cooled engines are being taken Germany, where the water-cooled engine so long had planes almost to itself. For the matter of that other na seem to be equally convinced of the merits of big radia

The Bristol Jupiter is certainly the most manufac aero-engine in the World,—counting the big output o Bristol factory and of the Gnôme-Rhône factory in and of all the licensees and sub-licensees. The Jagu being made in quantities by the Armstrong-Siddeley fi Coventry. The Pratt and Whitney Wasp has pe the biggest output in the States. The Wright Cyclo now in production. And the Curtiss Company have no their big radial right for production.

We in this country can take most of the credit fo change in fashion. The French Séguin Brothers starte boom in rotary engines, with the Gnôme, which made possible on thoroughly bad aeroplanes. Anzani built (or stationary) radials which worked, but missed his because his engines were heavy and unreliable.

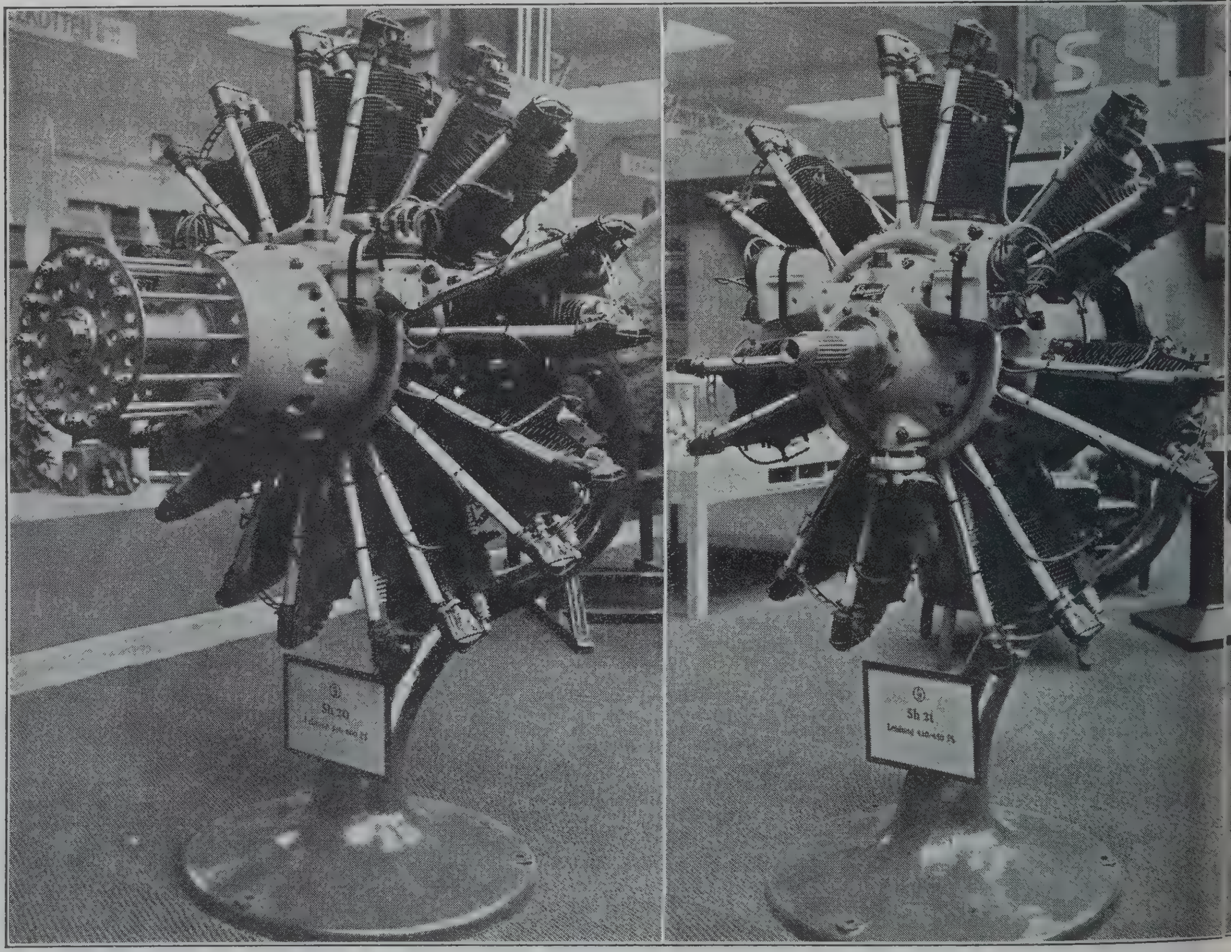
The first static radial which was light and at all factory was the Cosmos Jupiter designed by Mr. Roy F and built by the Straker-Squire firm. Then Mr. Gra Bradshaw brought out the A.B.C. Wasp and Drag Neither the Cosmos nor the A.B.C. was perfected befo end of the War.

Then the Bristol Aeroplane Co., with commendable sight, took over the Cosmos business and Mr. Fedden it. And so the Jupiter was made to work, while the Dr fly was allowed to fall into oblivion.

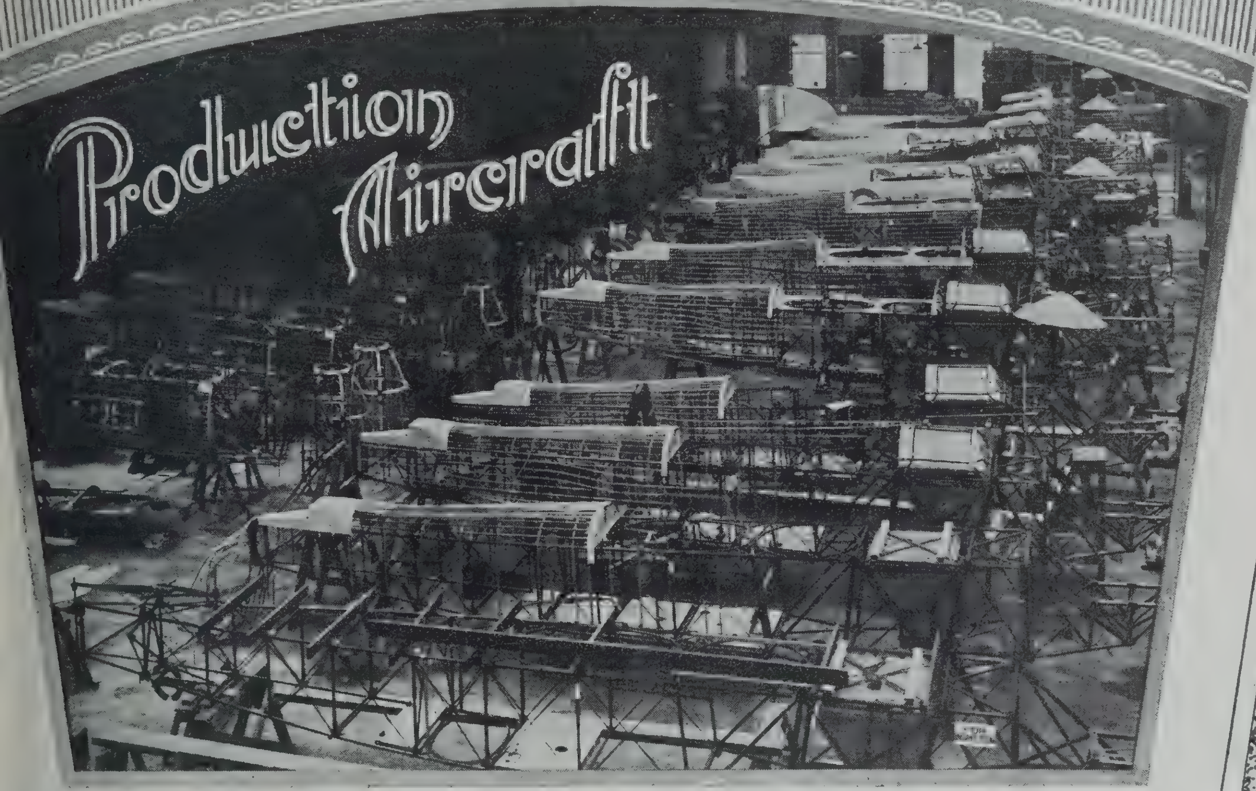
The success of the Jupiter was, one believes, one o chief incentives to the Wright Co. to persevere with ra And so came the Whirlwind, which started the boo radials in the States.

Some Rivals.

Whether the radial will continue to have things a own way is another question. The air-cooled in-line e is making vast progress,—as shown by the Cirrus an



GERMAN STAR-MOTORS.—The big radial Siemens engines, on the left the 560/600 h.p. Sh.20, and on the righ the 420/450 h.p. Sh.21.



A Section of the Main Erecting Shop shewing All-metal Air Craft in the course of construction

NOW that metal construction forms the usual means of modern aircraft construction, the advantages of quantative production to the user are even more apparent than hithertofore. The increased use of press tools which becomes possible when large numbers of aircraft are being manufactured, and the more complete utilization of jigs for all components and parts—just to mention two features — render not only a more accurate and effective construction, but also forms an important service item in the true interchangeability of spare parts.

FAIREY

AIRCRAFT

THE FAIREY AVIATION CO., LTD., HAYES, MIDDLESEX

Gipsy. And this type is doing best in low powers in light aeroplanes, where its weight, as compared with a radial, would seem to put it at a dis-advantage. Its success is due actually to its reduced head-resistance.

The future of the air-cooled engine will be interesting to watch. The projected area, and consequent head-resistance, of the radial is against it. Its weight is against the in-line type, and its close relative the V-type.

Gearing-down of the airscrew is an immense advantage to each type, as it allows the use of a big airscrew which can thus get effective blade area *outside* the engine and the the fuselage of the aeroplane. The increased performances of machines with geared Jupiters are remarkable.

Gearing-down also allows higher engine-speeds. Hence we have the little Pobjoy engine passing its Air Ministry endurance tests at 3,000 revs. per minute. And this is a comparatively low rate of revolution compared with small cars which, in spite of road vibration, and dust sucked into the cylinders through the air intake, cruise for years at 4,000 r.p.m., and will run up to 6,000 when hustled,—leaving out supercharged racing cars which cruise at 5,000 and hustle up to 8,000.

High revolutions mean big power with small cylinders (though not with small petrol consumption). And so, with big airscrews, high revolutions, and small cylinders, all our present aero-engines may be out of date before long.

FUTURE PROBLEMS.

Even the radial and the in-line and the V-type do not represent the last word in cylinder arrangement. Something may be done with flat double-opposed engines, stowed in the wings and driving pusher-screws. And there is talk of an engine with four blocks, each of four cylinders, all vertical, with two upside-down, driving two crankshafts each geared to one airscrew shaft,—like a kind of doubled Bugatti. The idea is attractive and is said to work,—which the Bugatti experiment did not.

Taking it all round, the aero-engine position is very interesting. There is quite a lot to be done with the ordinary four-stroke petrol engine,—as suggested. There are possibilities still unexplored in the two-stroke,—it works on motor-bicycles, so why not in aeroplanes? The Caminez principle works, and may become quite reliable. The full Diesel has reached the stage of flying. And there is still the swash-plate engine and the turbine to keep inventors and experimenters busy.

Thus, within a year or two, all the beautiful engines at the Ila may be obsolescent, and in five years or so all like them may be merely scrap-iron. It is a terrible prospect for engine manufacturers whose stock-pattern motors co much to produce. One can only recommend them to very wide awake and to be ready to change onto types as soon as one offers itself which is obviously a vance on present ideas. For we must have progre Aviation at all cost.—C. G. G.

ENGINES AT THE ILA.

In a show report of this kind there is obviously not e space to describe in detail every engine at the Ila. would need several complete issues of this paper. The interesting of them will be so described from time to in the monthly *Engineering Supplement* to THE AERO and the specifications of all of them will be found i *The World's Aircraft,* now in preparation,—in fact mo the engines appear in the current issue which appeare December. Therefore one proposes here to give only of the engines, together with their type-names or lett or numbering, and their type-description and horse-pow

Thus readers will learn what firms showed which eng —and that means in effect a fairly complete catalog European aero-engines of to-day. Also pictures appe all engines of which photographs could be got,—so claims that this is a fully illustrated catalogue.

German Motors.

Bayerische Motoren Werke, A.G.—Lerchenauerstrasse **Munich.**

The B.M.W. show the greatest variety of engines i Ila. Taking them in order of lettering, the water-c types are as follows :—

IIIa,—185/260 h.p.—6 separate cylinders in-line : IV, 310 h.p. 6 separate cylinders in-line, super-compressed 320/385 h.p. 6 separate cylinders : V, 320/410 6 cylinde block.

VIU,—500/750 h.p. 12-cyl. V-type. Farman-type ge

VIIaU,—600/755 h.p. 12 cyl. V-type. Farman gear, Bosch ignition instead of magneto.

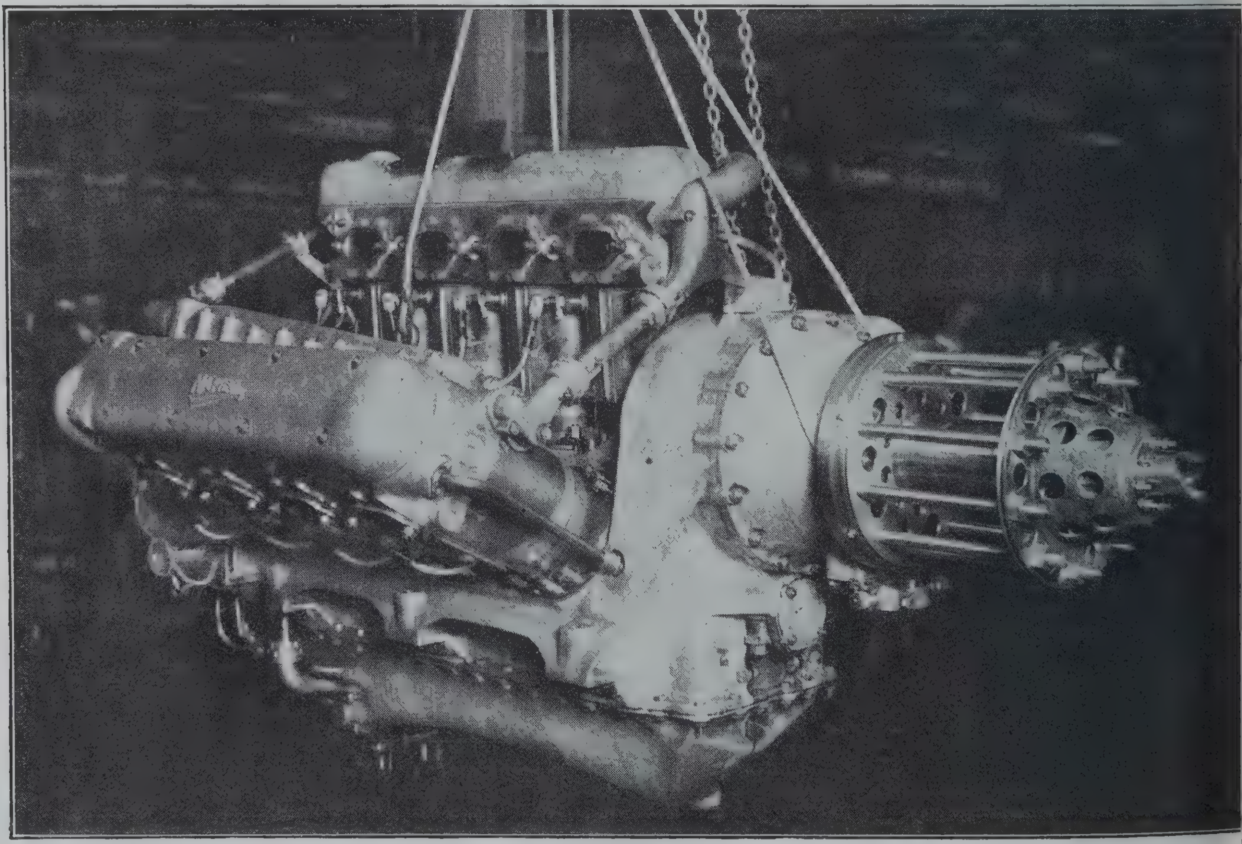
VIIIU,—400/530 h.p. 6 cyl. in-line, Farman gear, ignition.

VIIUK,—600/755 h.p. 12 cyl. V-type, Farman gear, ignition and supercharged.

B.M.W. Hornet.—A 9 cyl. radial air-cooled, built licence to Pratt and Whitney.

Junkers-Motorenbau G.m.b.H., Dessau.

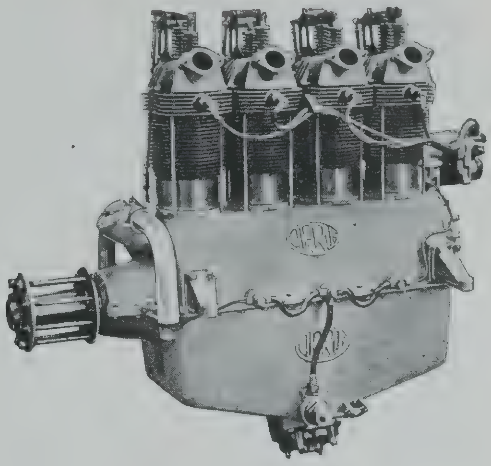
The chief interest among the Junkers engines centr



THE LION IN ITS DEN.—A representative British engine. The Napier Lion XI, of the type which won the Schneider Trophy. The engine is here seen in the Napier Works. The beauty of the photography will appea to engineers who have perforce to accustom themselves to pictures in which cutting-out, painting-out, or vig-netting spoils the proportions of the illustration.

PROOF
OF
"CIRRUS" RELIABILITY.

"Cirrus" Engines have proved their reliability in all parts of the World as evidenced below :—



85/95 h.p. CIRRUS Mark III.

1925.

100 HOURS AIR MINISTRY TYPE TEST, May, 1925.
LONDON—ZURICH—LONDON in one day.
LONDON—DUBLIN with 70 mile sea crossing.

1926.

TRANSPORTATION OF NEWSPAPERS, 15,445 miles 100% efficiency.
1st, KING'S CUP AIR RACE, 1926.
BOURNEMOUTH MEETING, 8—1st places in 10 events.
1st, AUSTRALIAN AIR DERBY.

1927.

LONDON—INDIA, 5,500 miles including 250 mile sea crossing, 2 machines (both flown Solo).
PERTH—MELBOURNE, 2,000 miles.
AROUND SOUTH AFRICA in a week.
LONDON—INDIA (Karachi).
1st, KING'S CUP AIR RACE, 1927.
2nd, KING'S CUP AIR RACE, 1927.
LONDON—RIGA (Latvia), Non-stop, 1,200 miles.
LONDON—CAPETOWN, 8,000 miles.
BRITANNIA TROPHY, 1927, awarded Lt. R. R. Bentley, M.C., A.F.C., for above flight.
TOUR OF EUROPE, 3,860 miles.

1928.

ENGLAND—AUSTRALIA in 15½ days (Solo).
ENGLAND—AUSTRALIA with passenger.
LONDON—CAPETOWN, Lady Pilot (Solo).
CAPETOWN—LONDON with passenger.
CAPETOWN—LONDON, Lady Pilot (Solo).
GOTHENBURG INTERNATIONAL MEETING, 1st in 7 events.
LONDON—CAPETOWN in 13 days.
1st, MIDLAND OPEN CHALLENGE CUP.
1st, SIDDELEY TROPHY, 1928, Lady Pilot.
1st, BUCKS HERALD CHALLENGE CUP.
DUTCH INTERNATIONAL MEETING, 1st in final classification.
FRENCH INTERNATIONAL LIGHT PLANE COMPETITION, 1st in Reliability.
FRENCH INTERNATIONAL LIGHT PLANE COMPETITION, 1st in Quality.
FRENCH INTERNATIONAL LIGHT PLANE COMPETITION, 2nd in Climb.
LIGHT AEROPLANE ALTITUDE RECORD BROKEN, 23,000 feet reached.
NEW YORK—LOS ANGELES in American National Races.
AMERICAN NATIONAL AIR RACES, 1st Prize in Efficiency Contest.
2nd, WINDSOR, ONTARIO—LOS ANGELES, in American National Races.
LONDON—BERLIN, 620 miles in 4 hours 52 mins.

Cirrus Aero Engines are fitted in :—

AVRO "AVIAN,"
WESTLAND "WIDGEON,"
BLACKBURN BLUEBIRD,"
REID "RAMBLER" (Canada),
R.K.2b "PELIKAN" (Germany),
D.H. "MOTH,"
SIMMONDS "SPARTAN,"
SHORT "MUSSEL,"
COMTE "GENTLEMAN" (Switzerland),
R.K.25, "EXPRESS TRAVEL" (Germany),

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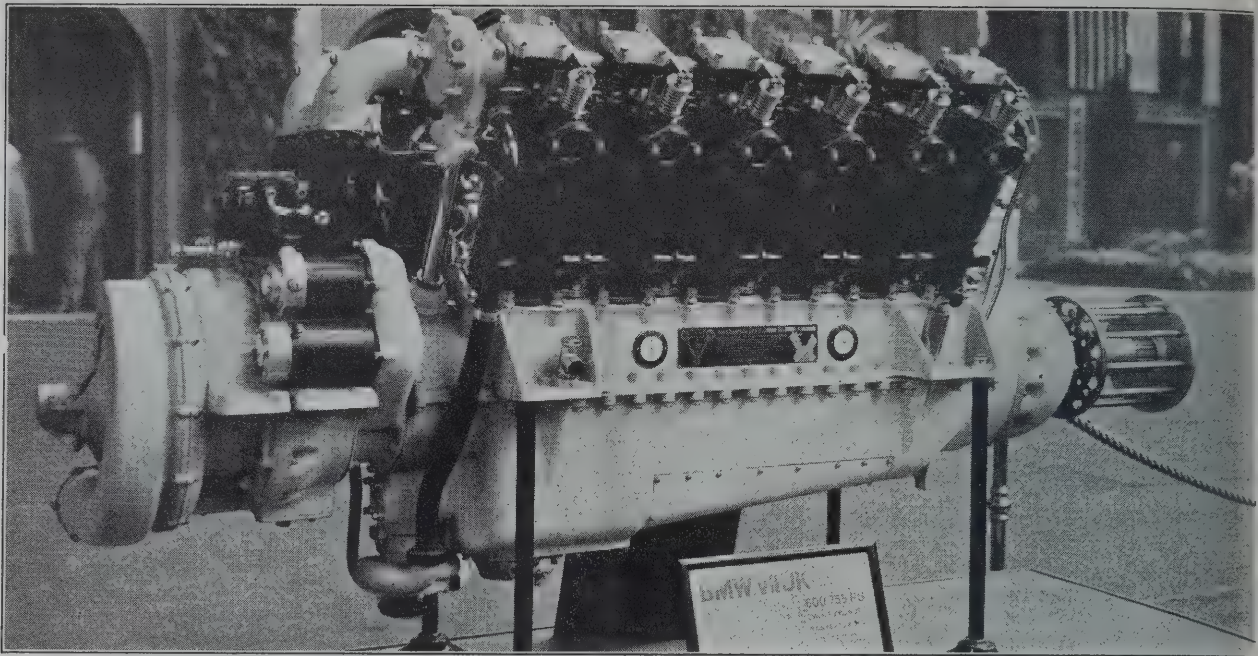


A GERMAN SUPERCHARGED MOTOR.—The B.M.W. VIIUK.—With Bosch Ignition and Farman Gearing.

Research Motor F.O.3., which was built in 1926. This is a heavy-oil engine with ten cylinders, vertically opposed, or it might be described as a vertical 5-cyl. engine with two pistons per cylinder. That is to say, there are five in-line on top and five upside down below, the explosion taking place between the two piston-heads much after the manner of the old Gobron-Brillé. The whole engine is about 6 feet deep. The actual power which it gives is not stated but one gathers that it works well.

The ordinary four-stroke engines are all water-cooled, of simple and neat design, and obviously reliable. These are: —L.5, 280/310 h.p., 6-cyl. in-line, which is the trans-Ocean and World-Record type: L.8, 350/420 h.p., a boosted version of the same engine: L.55, 600/650 h.p., 12-cyl. V-type, very simple, clean and neat but for the fact that the water pump and sump come down very low and there are a good many external oil pipes to break: L.55 (supercharged) is a similar engine with a rotary compressor at the rear, it is stated to give 525 h.p. at 5,000 metres (16,000 feet): L.88 is a similar 12-cyl. engine of 700/850 h.p

Daimler-Benz Aktien Gesellschaft, Stuttgart-Unterturkheim.

Perhaps the greatest contrast in the Ila, in size and power.

F.2,—800/1,000 h.p.—12-cyl. V-type, water-cooled.

F.1, 30 h.p., a 3-cylinder air-cooled radial.

F.7502, 20 h.p. The little two-cylinder double-opposed air-cooled radial,—as used in the Klemm monoplane in nearly all its big flights.

Argus Motoren Gesellschaft m.b.H., Berlin-Reinickendo

The old Argus firm show three engines, and a blower, a supercharger, evidently of the Roots type.

As.V., water-cooled 12 cyl. V-type of unnamed h.p.

As.VI., a 12 cyl. V-type, also of unnamed h.p., with verted cylinders, supercharged, and with an Ameri Eclipse inertia starter.

Also on this stand is a 4 cyl. in-line engine of 100 h built in 1910, as used on many of the earliest German ae planes.

Siemens and Halske A.G., Berlin-Siemensstadt.

A fine display of air-cooled radial engines.—

SH.11.—84/96 h.p., 7-cyl.; S.H.12.—108/125, 9-cyl.: S.H. —68/82 h.p., 5-cyl.: SH.14.—95/115 h.p., 7-cyl.

A Siemens-built Jupiter, Mk. VI, 485/510 h.p., 9-cyl., geared.

SH.20.—560/600 h.p., 9-cyl.—The biggest air-cooled ra made in Germany.

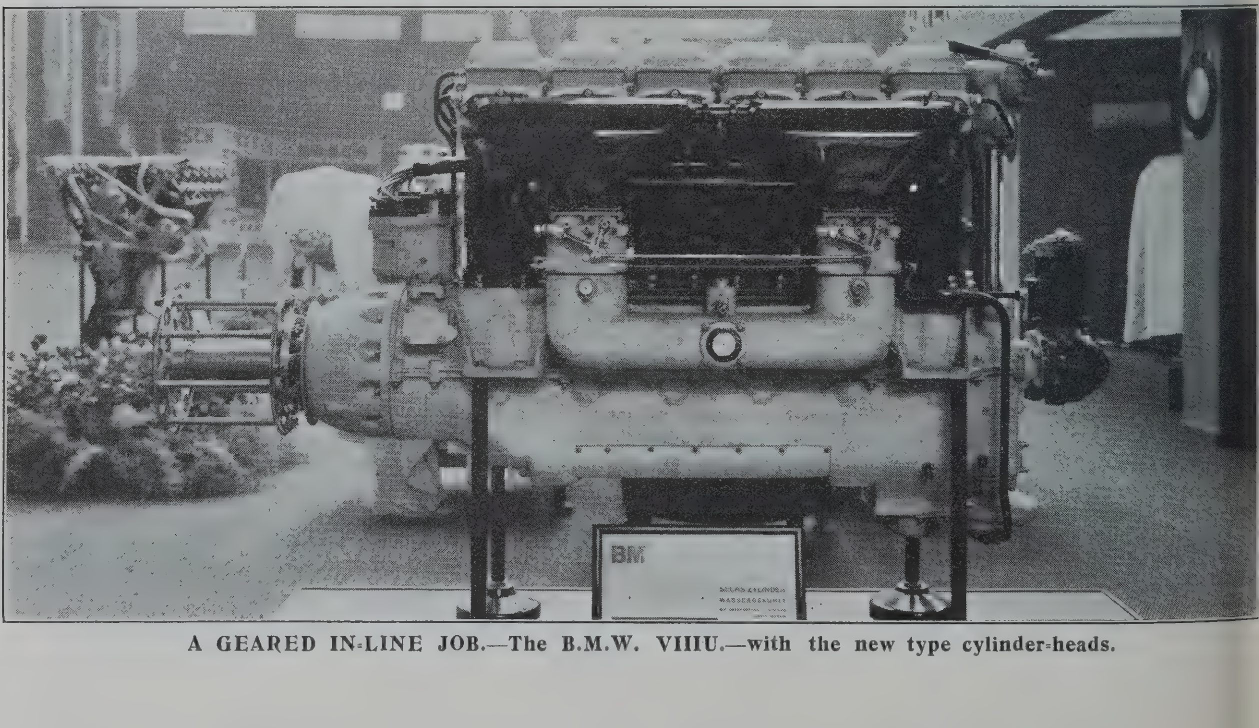
SH.21.—420/450 h.p., 7-cyl.

Belgian Engine.

Renard :—5-cyl. radial air-cooled, 100 h.p.

French Engines.

Renault :—80h.p., 4-cyl. in-line; geared, with enormous screw boss; starting handle at rear, to come into cock-p oil sump as big as engine. Evidently intended as a reply the Cirrus. Looks very heavy.



A GEARED IN-LINE JOB.—The B.M.W. VIIIU.—with the new type cylinder-heads.

The GIPSY MOTH

is teaching the World to fly

Guaranteed superior all-round performance to that of any machine of the same class in the world.

THE DE HAVILLAND AIRCRAFT COMPANY, LTD.,
STAG LANE AERODROME — EDGWARE — MIDDX.

DH MOTH

PRICE
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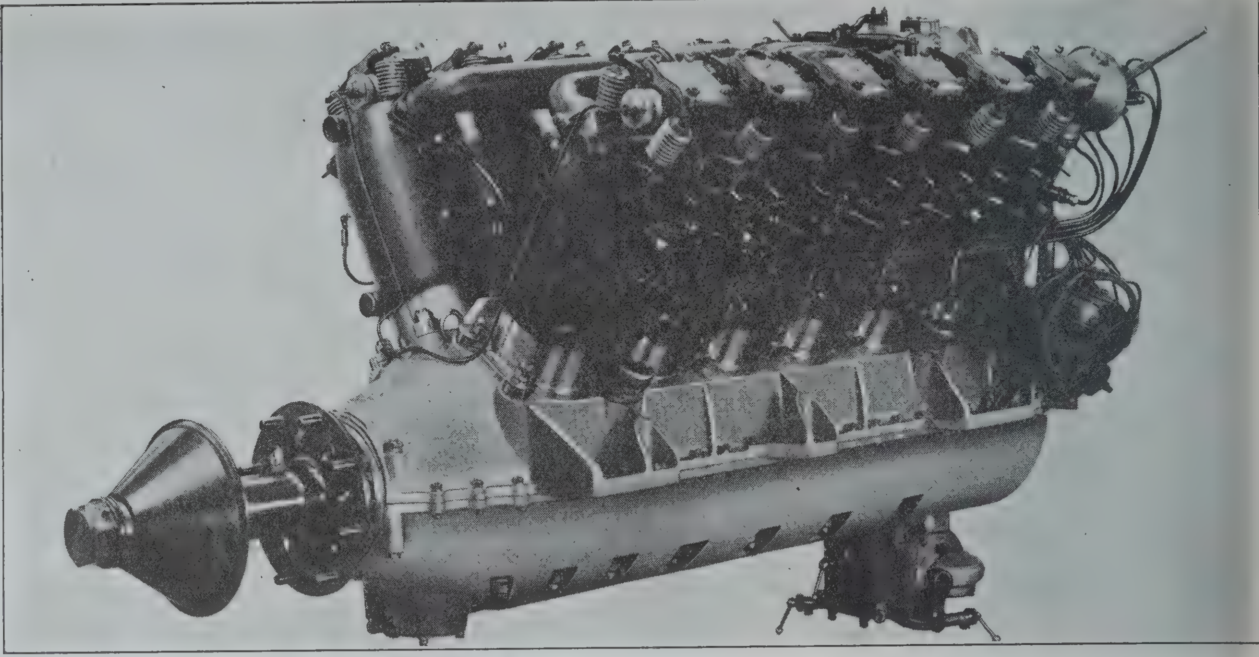
READY
TO FLY
AWAY



A JUNKERS PRODUCT.—The L.55,—12-cyl. V-type.

A 50 h.p., 8-cyl. V-type of 1911,—of the type which won the Paris—Puy-de-Dôme Prize. An interesting relic.

A 250 h.p., 9-cyl. radial,—as big as a Jupiter.

A 500 h.p., 12-cyl. V-type, wter-cooled, geared. And a 750 h.p., 12-cyl. V-type water-cooled geared.

Lorraine-Diétrich :—A 100 h.p. 5-cyl. radial (Mongoose type); A 230/270 h.p., 7-cyl. radial (Lynx type); and a 14-cyl. 470/550 h.p. radial (Jaguar type).

A 650/750 h.p., 18-cyl., W-type water-cooled. And a 450 h.p., 12-cyl. W-type, water-cooled.

Salmson :—(All air-cooled)—9AD.—40 h.p., 9-cyl. radial; 5AC.—60 h.p., 5-cyl. radial; 7AC.—95 h.p., 7-cyl. radial; 9AC. —120 h.p., 9-cyl. radial; 9AB.—230 h.p., 9-cyl. radial; 18AB. —500 h.p., 18-cyl. radial.

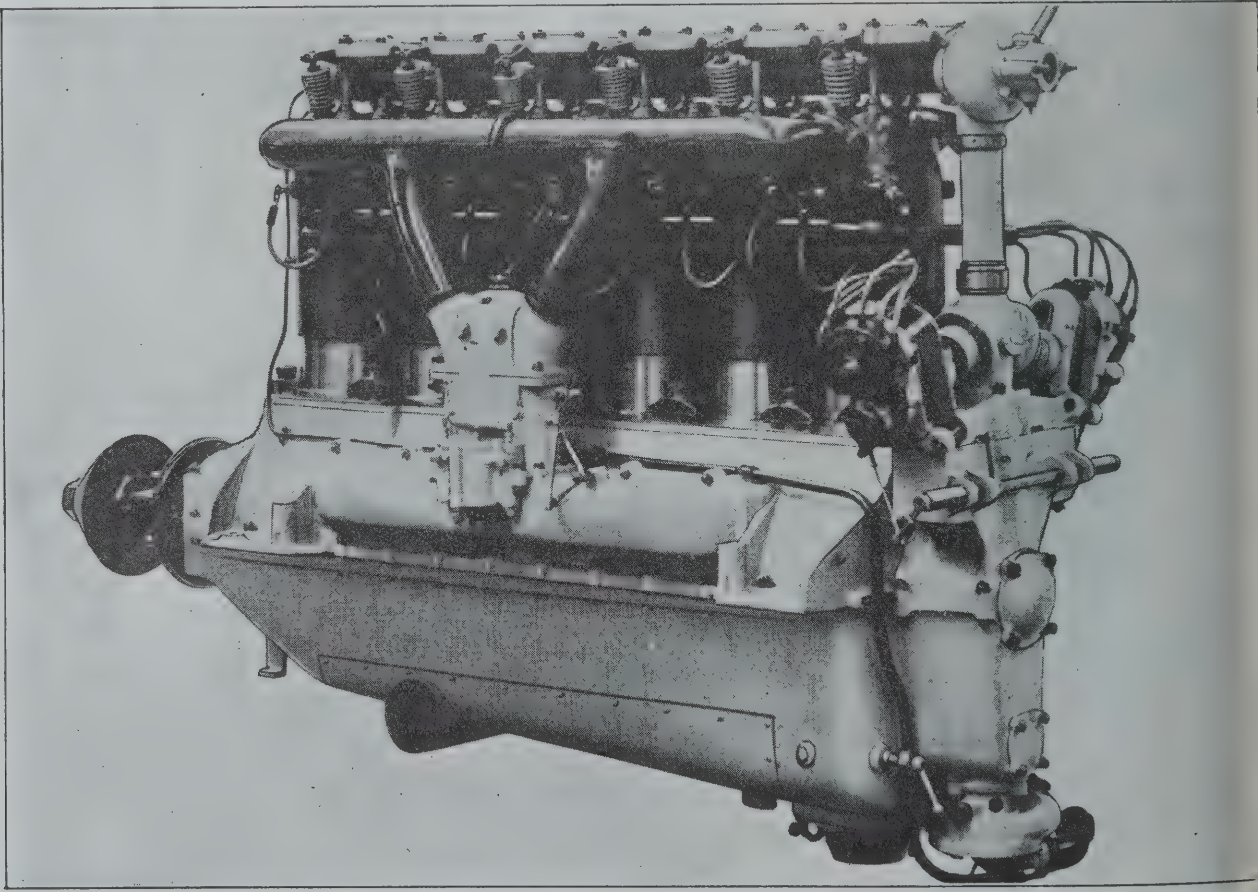
Hispano-Suiza :—(All water-cooled)—250 h.p., 6-cyl. in-li 500 h.p., 12-cyl. V-type; 600 h.p., 12-cyl. V-type.

Gnôme-Rhône :—A Jupiter VII (supercharged) and a Ti 240 h.p.

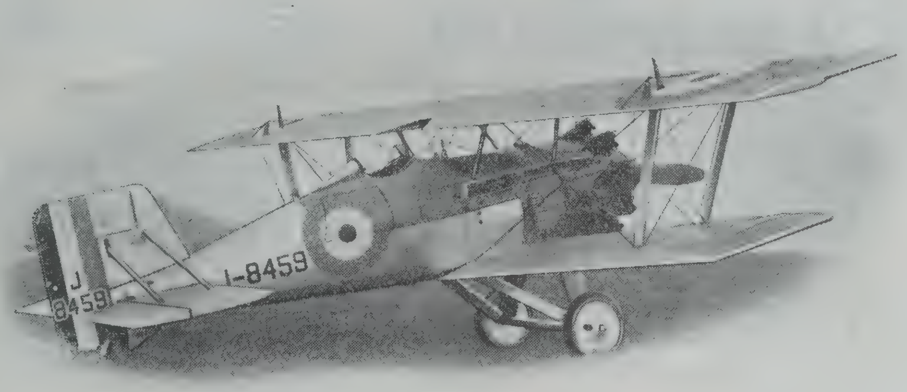
S.F.F.A. (Société Française de Fabrications Aéronautiqu A 3-cyl., 40 h.p., air-cooled radial. And a 7-cyl., 90 h.p., a cooled radial.

Aviation Michel :—AM14.—90/110 h.p., 4-cyl. in-line, cooled : AM16.—50/85 h.p., 6-cyl. in-line, water-cooled : A —200 h.p., 6-cyl. in-line, water-cooled.

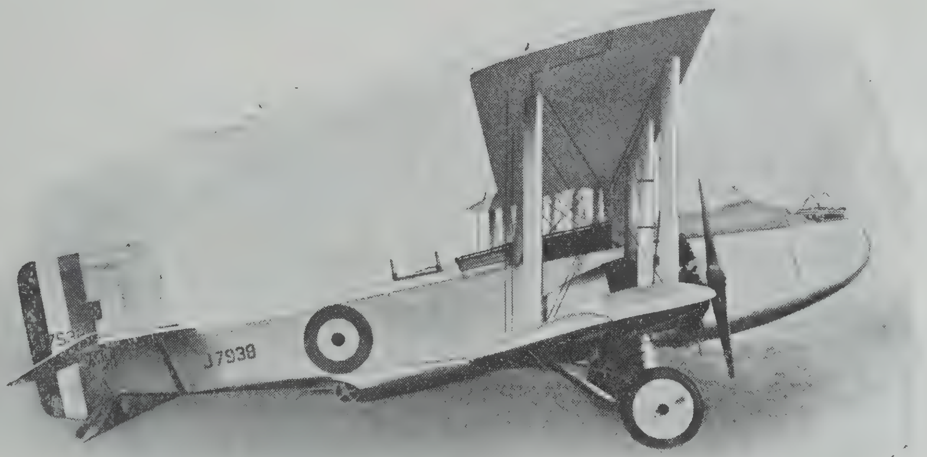
Farman :—700 h.p., 18-cyl. W-type, water-cooled invert supercharged; and 500 h.p., 12-cyl. W-type, water-coole supercharged.



TRANS-OCEANIC.—The famous Junkers L.5,—a straight-six job,—which holds various records and flew the "Bremen" to Labrador.



The Boulton & Paul "Partridge" single seater fighter of all-metal construction.



Boulton & Paul All-metal "Sidestrand" Day Bomber. Chosen recently after exhaustive tests as a Royal Air Force Service Machine.

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Telegrams: "Boulton, Norwich."

NORWICH

Telephone: Norwich 581 (5 lines).

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Enquiries of Aircraft constructors and users are invited for the following specialities manufactured by Vickers (Aviation) Ltd.:

Vickers (Patent) Petrol Cocks (light pattern).

Vickers Petrol Pumps (hand-operated and wind-driven).

Petrol. Filters and other accessories for petrol, oil and water systems.

Vickers-Davis Navigation Lamps (light pattern).

Generating Equipment for Aircraft Lighting.

Vickers-Reid Control Indicator.

Vickers-Potts Oil Coolers.

Vickers Oleo-Pneumatic Undercarriage and tail skid shock-absorbing units.

Vickers Universal Pulleys and Guards for light control.

Streamline Wires and Swaged Tierods.

"Malleville" Adjustable Pipe Clips.

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Nous invitons MM. les constructeurs et acheteurs d'avions de communiquer avec nous au sujet des spécialités citées ci-après :

Robinets d'essence, brevetés "Vickers" (modèle léger).

Pompes à essence "Vickers" (à main et à moulinet).

Filtre à essence, et autres accessoires pour systèmes d'essence, d'huile et d'eau.

Lampes de navigation Vickers-Davis (modèle léger).

Equipement électrique d'éclairage de bord.

Indicateur de contrôle de vol Vickers-Reid.

Radiateurs d'huile "Vickers-Potts."

Systèmes amortisseurs oléo-pneumatiques de train d'atterrissage et béquilles "Vickers."

Poulies Universelles et guide-cable "Vickers" pour charge légère.

Haubans fuselés et tirants étampés.

Colliers réglables de "Malleville" pour tuyauteries.

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Stromerzeugung-Anlage für Luftfahrzeugbeleuchtung.

Vickers-Reid Flugkontrollapparat.

Vickers-Potts Ölkühler.

Vickers Oleo-Pneumatische Stossfänger für Unter-Fahrgestelle und Schwanzstützen.

Vickers Universal-Riemenscheiben und Schirme für leichte Belastung.

Profildrähte und Gesenk - Ankerstäbe.

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Rogamos que todos los constructores y compradores de aviones nos consulten para las especialidades siguientes :

Grifos de gasolina patentados "Vickers" (modelo ligero).

Bombas de gasolina "Vickers" (a mano y a molinete). Purificador de gasolina y otros accesorios para sistemas de gasolina, aceite y agua.

Lamparas de navegación "Vickers-Davis" (modelo ligero).

Equipo eléctrico de alumbra de bordo.

Registrador de vuelo "Vickers-Reid."

Radiadores de aceite "Vickers-Potts."

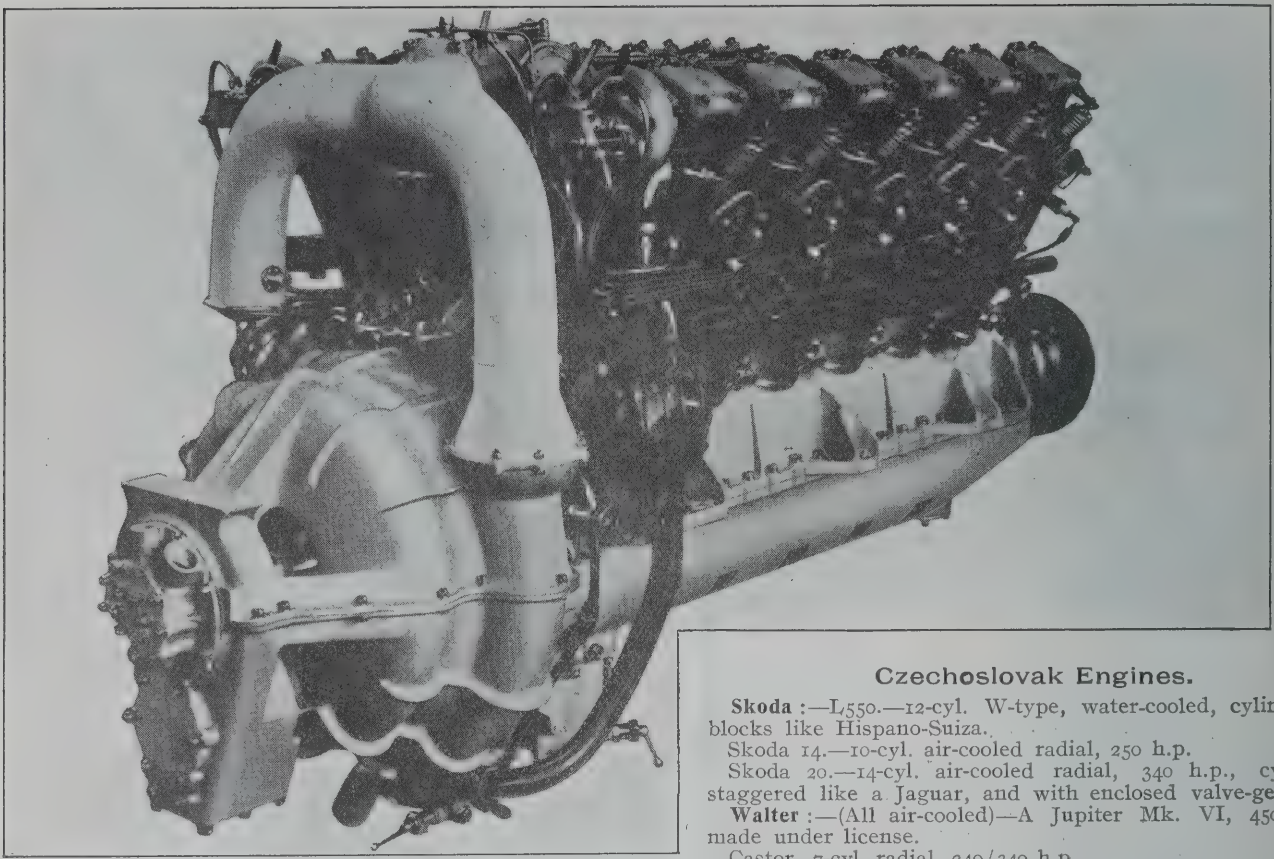
Sistemas de frenos oleo-neumaticos del tren y del soporte de cola.

Poleas y garruchos "Vickers" para carga ligera.

Cables perfilados y obenques extendidos.

Argollas arreglables "Malleville" para sistema de tubos.

VICKERS HOUSE, BROADWAY, LONDON, S.W.1.
Works : WEYBRIDGE, SURREY.



THE SUPERCHARGED JUNKERS.—The L.55, with rotary blower on the rear end.

Italian Engines.

Fiat :—(All water-cooled)—A20.—12-cyl. V-type, 430 h.p., —exactly like the Curtiss D-12; A22.—12-cyl. V-type, 570 h.p., —a boosted version of the same; A25.—12-cyl. V-type, 1,000 h.p.,—still larger; As.3.—12-cyl. V-type, 1,000 h.p.,—a specially-built engine for the Schneider racing-machines, and holder of the World's Speed Record.

Isotta-Fraschini :—Water-cooled :—Asso 200 h.p., 6-cyl. in-line; Asso 500 h.p., 12-cyl. V-type; Asso 1,000 h.p., 18-cyl. W-type. Asso R.1. 550/600 h.p., 12-cyl. V-type, geared.

Air-cooled :—Asso-Cacchia 450/500 h.p., 12-cyl. V-type air-cooled; Asso 80 h.p., 6-cyl. in-line, air-cooled. The latter engine has cylinders and the top half of the crankcase cast in one in magnesium alloy.

Czechoslovak Engines.

Skoda :—L550.—12-cyl. W-type, water-cooled, cylinders in blocks like Hispano-Suiza.

Skoda 14.—10-cyl. air-cooled radial, 250 h.p.

Skoda 20.—14-cyl. air-cooled radial, 340 h.p., cylinders staggered like a Jaguar, and with enclosed valve-gear.

Walter :—(All air-cooled)—A Jupiter Mk. VI, 450 h.p.—made under license.

Castor, 7-cyl. radial, 240/340 h.p.

Walter, 5-cyl. radial, 60 h.p.; Walter, 7-cyl. radial, 85 h.p.; Walter, 9-cyl. radial, 120 h.p.

British Engines.

The British engines at the Ila were mentioned in the notes on the British Section last week. However, to keep the catalogue as complete as possible, they are repeated here :—

A.D.C. Aircraft Ltd. :—A Nimbus, 6-cyl. in-line, water-cooled, 330 h.p.; A Cirrus Mk. II, 4-cyl. in-line, air-cooled, 80 h.p.; A Cirrus Mk. III, 4-cyl. in-line, air-cooled, 90 h.p.

Rolls-Royce :—An F.XI 12-cyl. V-type, 400 h.p.

Napier :—A Lion XI, 12-cyl. W-type, 500 h.p.

De Havilland :—A Gipsy, 4-cyl. in-line, 100 h.p.

Bristol :—Jupiter geared, and ungeared, and a Titan.

Armstrong-Siddeley :—Jaguar, Lynx, Mongoose, and Genet.

A CZECHOSLOVAKIAN DISPLAY.—The array of Walter engines.

Blackburn
RIPON

THE "RIPON II"
NAPIER-ENGINED
TORPEDOPLANE
with gunner's cockpit immediately behind the pilot. Equally suitable for coastal-defence, reconnaissance, bombing, and torpedo-carrying purposes. Built to operate as a seaplane or a landplane Adopted by the FLEET AIR ARM of GREAT BRITAIN and by Foreign Governments.

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P.1.

LONDON
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(CIRRUS u. NIMBUS MOTOREN)
CIRRUS
LADY HEATH BEATS WORLD AIR RECORD
EVENING NEWS
CIRRUS MOTTEN
500 CIRRUS MOTOREN SIND IN DIESEN LEICHTFLUGZEUGEN IM GEBRAUCH
CIRRUS MOTOREN SIND EINGEBAUT IN DIE D H MOTTE AVRO AVIAN WESTLAND WIDGEON SHORT MUSSEL SIMMONDS SPARTAN BLACKBURN BLUEBIRD und ZWANZIG ANDERERTYPEN VON FLUGZEUGEN
A.D.C. AIRCRAFT 75/80 HP MARK II CIRRUS
NIMBUS
A.D.C. AIRCRAFT LIMITED 85/95 HP MARK III CIRRUS

MOTORS THAT MAKE THE MACHINES GO.—The Exhibit of A.D.C. Aircraft Ltd.

THE SOLENT'S TOUR IN IRELAND.

Probably the first aerial holiday ever taken in a flying-boat was that of the Hon. A. E. Guinness, together with his private secretary, Mr. O. S. Baker, who made a flying tour of the West of Ireland from Sept. 10 to Sept. 24. The Supermarine Solent flying-boat (with three Armstrong-Siddeley Jaguar engines), fitted out as a passenger-carrying yacht, was used for the trip.

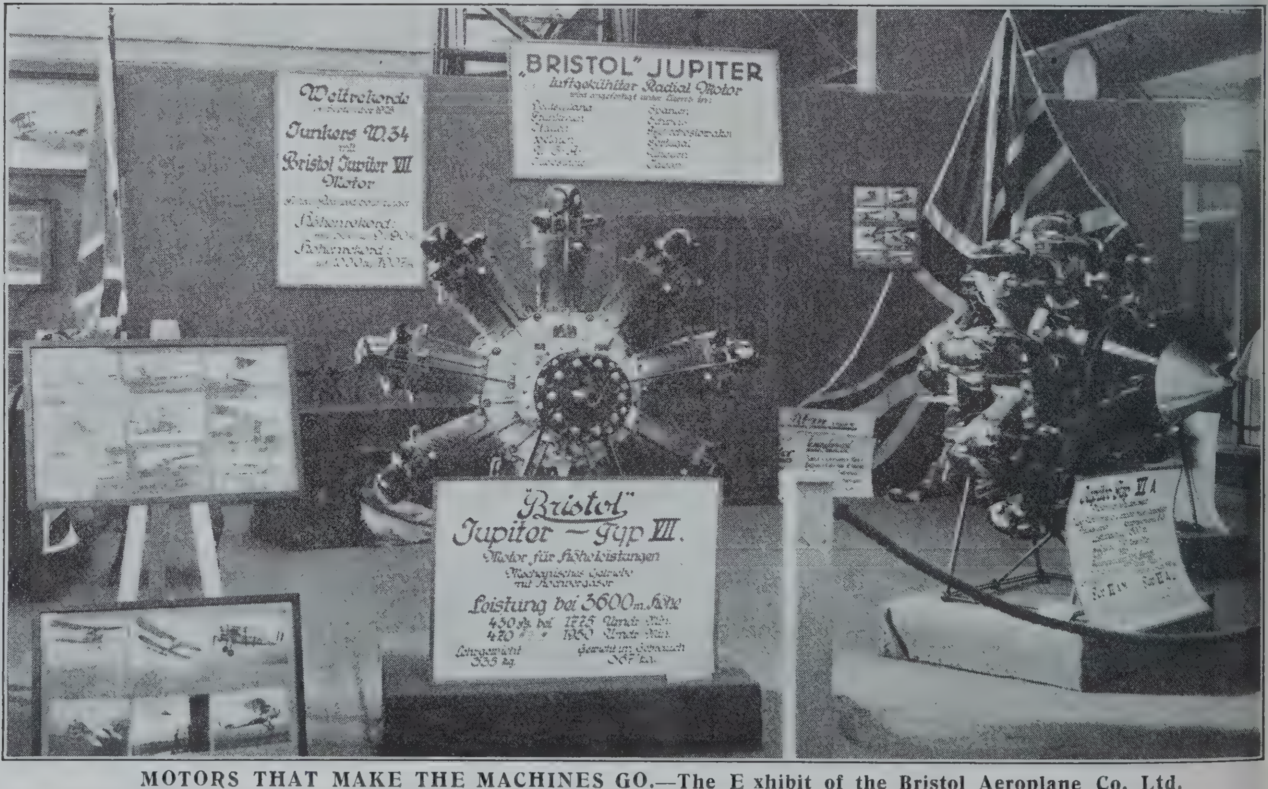
This began at Cowes, and the first alighting was made in Kingstown Harbour, Co. Dublin, which was reached at 13.20 hrs. (4½ hours' flying time). The coast was followed to Lyme Regis and thence across Devonshire and Somersetshire to Watchet. Over the Bristol and St. George's Channels at about 500 ft. to 600 ft. the clouds were rather low and nothing was seen till the Tuskar light was picked up.

The boat was the object of considerable interest to a large number of people, who were rowed out by the local boatmen to inspect it at close quarters while moored off the Carlisle Pier at Kingstown.

The base from which the flights over the lakes and the West Coast were to be made was on Lough Corrib, wher special moorings were laid. So on Sept. 11 the machin left Kingstown at 15.20 hrs. and, after flying across Ireland alighted on Lough Corrib at 17.5 hrs. This was the firs flight of a flying-boat across Ireland. Though this might a first sight appear risky, it is probably actually safer tha making the same journey in a land-plane, as the landin grounds towards the West Coast were almost impossible fo any land machine, whereas for a flying-boat there ar numerous bogs and lakes, on either of which a flying-boa could land without killing its crew.

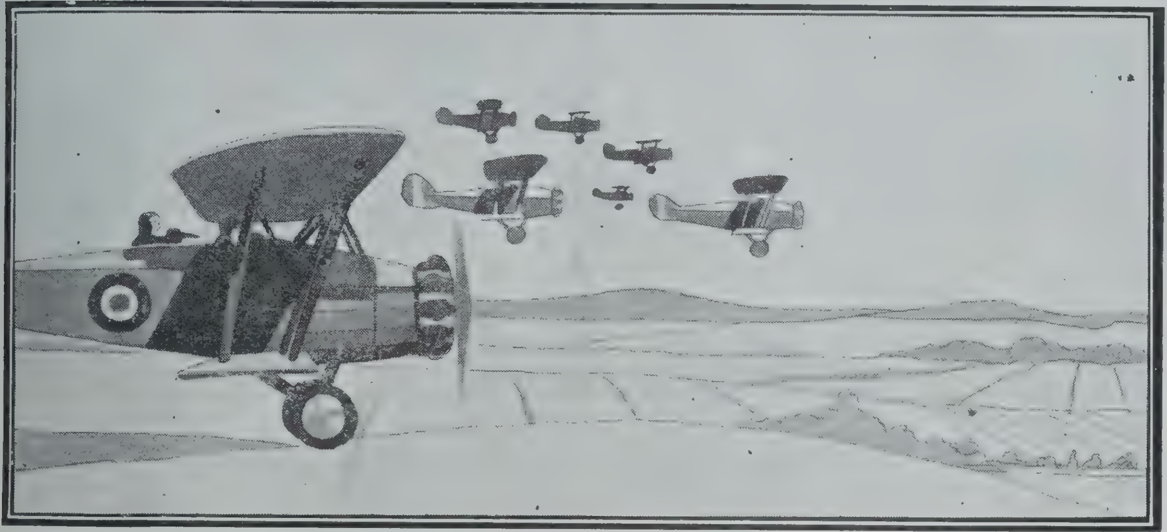
Except on one or two days the weather was good for th whole of the cruise, each day of which was utilised in flyin to various points of interest. On one occasion a landin was made at Ballinakill Harbour, where the night was spent

Some of the most beautiful scenery in the world is to b found in the Irish Lake district, and its charm is considerably enhanced when viewed from the air. Many very backward places were visited, and as the inhabitants had mostl never before seen any kind of aircraft their surprise an


„BRISTOL" JUPITER
Luftgekühlter Radial Motor
Weltrekorde
Junkers W.34 mit Bristol Jupiter VII Motor
Höhenrekord
„Bristol"
Jupiter — Typ VII.
Motor für Höheleistungen
Leistung bei 3600 m. Höhe
450 PS bei 1775 Umdr./Min.
410 PS bei 1960 Umdr./Min.

MOTORS THAT MAKE THE MACHINES GO.—The Exhibit of the Bristol Aeroplane Co. Ltd.

Choice of the Experts !



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Great achievement such as the Schneider Cup victory testify to the excellence of Ethyl.

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Pratts Ethyl Petrol is as safe to use as a motor fuel as any other petrol. It will not damage your engine, nor injure spark plugs, valves or stems.

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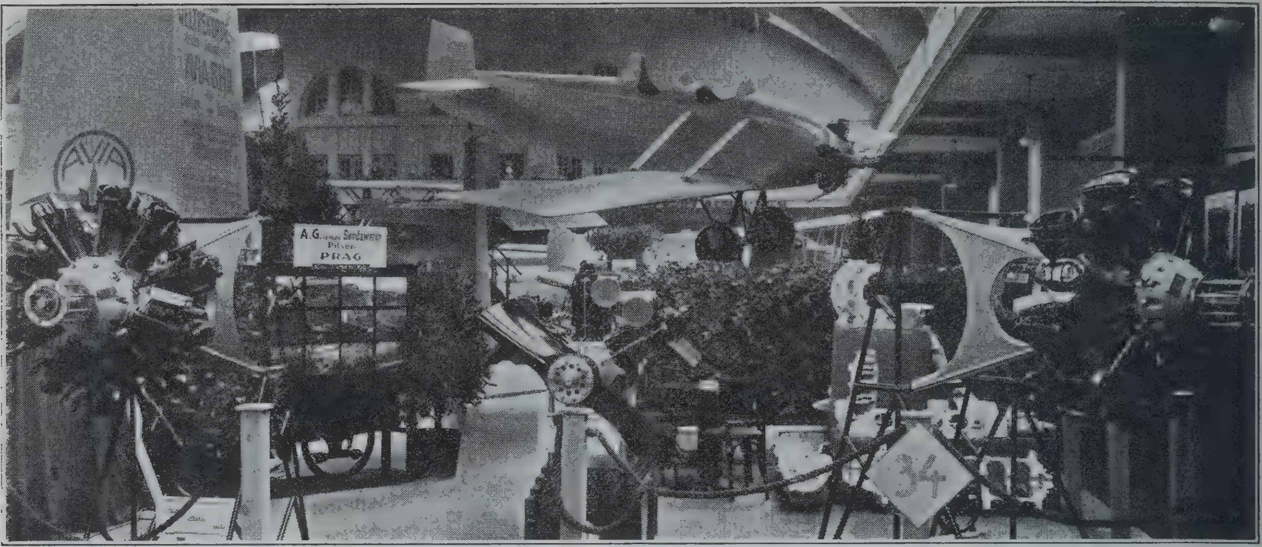


A CZECHOSLOVAKIAN DISPLAY.—Motors built by the famous Skoda firm, with an Avia monoplane behind.

wonderment at the winged boat may be imagined. Apparently they even refrained from shooting at it, although it must obviously have belonged either to one of the Governing class or to a Government of some kind.

The beginning of the return journey, on Sept. 24, was noteworthy for the rapid crossing of Ireland from coast to coast. The time was only 1 hr. 15 mins., thanks to a strong following wind.

After again calling at Kingstown, the homeward flight started at 11.55 hrs. on Sept. 25, and the boat arrived at Southampton at 16.30 hrs. It alighted off the Hythe Shops of the Supermarine Aviation Works.

The trip was successful in every way. No trouble of any kind was experienced with the machine nor with the engines, which never failed to start up on the first turnover and caused no anxiety throughout the cruise.

The complement carried was three passengers, pilot (Capt. H. C. Biard, of the Supermarine Co.), wireless operator and mechanic. The schedule which had been drawn up was maintained with a regularity which will inspire confidence in making a repetition of such an enjoyable and novel holiday and perhaps mark the inauguration of an aerial yachting season.

A FAST TRIP TO BERLIN.

On Oct. 19 Mr. T. Neville Stack flew non-stop fron London to Berlin in an Avro Avian (A.D.C. Cirrus engine in 4 hrs. 52 mins. He was favoured by a following wind and except for two bad rain-storms just beyond Brussels which forced him to fly below 100 feet, he had an uneventfu journey.

THE END OF AN AFRICAN FLIGHT.

Lt. P. Murdoch, S.A.A.F., who has for some considerable time been endeavouring to finish a return journe London—Cape Town—London, is reported from Cape Tow to have crashed at Kaffenga, Belgian Congo. His machine i said to be destroyed, but Mr. Murdoch is uninjured.

LADY BAILEY'S PROGRESS.

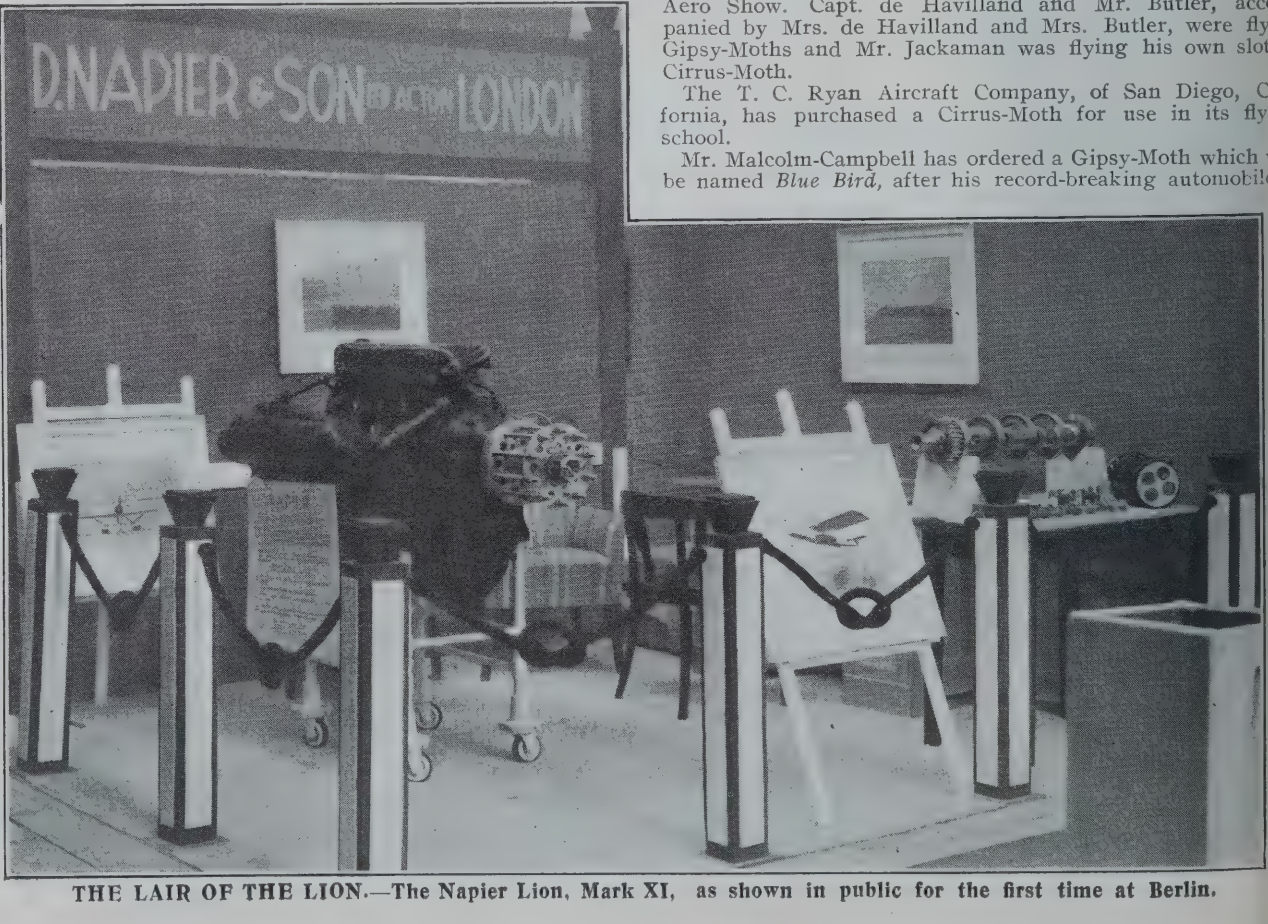
On Oct. 22 Lady Bailey left Loanda, Portuguese Wes Africa, and flew to Boma, Belgian Congo. Her probabl route thence will be by way of Leopoldville, Coquilhatville Bangi, Fort Archambaut and Fort Lami to Kano.

MOTH NOTES.

Capt. Geoffrey de Havilland, Mr. Alan Butler and Mr Jackaman all flew to Berlin on Oct. 19 to visit the Berli Aero Show. Capt. de Havilland and Mr. Butler, accompanied by Mrs. de Havilland and Mrs. Butler, were flyin Gipsy-Moths and Mr. Jackaman was flying his own slotte Cirrus-Moth.

The T. C. Ryan Aircraft Company, of San Diego, California, has purchased a Cirrus-Moth for use in its flying school.

Mr. Malcolm-Campbell has ordered a Gipsy-Moth which wil be named *Blue Bird*, after his record-breaking automobile.



THE LAIR OF THE LION.—The Napier Lion, Mark XI, as shown in public for the first time at Berlin.

THE SIMMONDS "CIRRUS-SPARTAN"

HAS INCOMPARABLY BETTER LATERAL CONTROL AT STALL THAN ANY OTHER LIGHT AEROPLANE. ONE WELL-KNOWN TEST PILOT HAS PUT IT, THAT SHE IS

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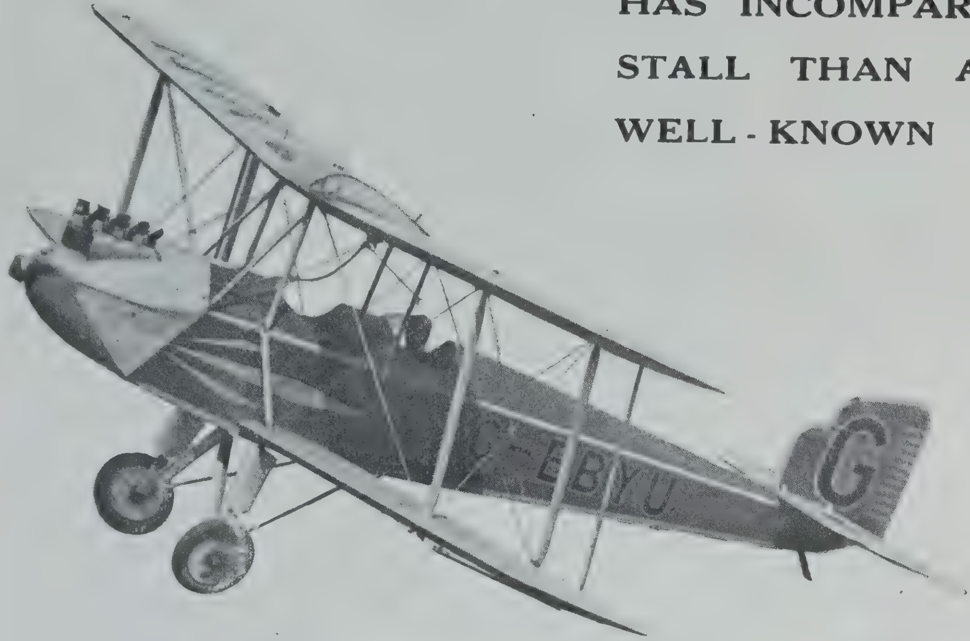
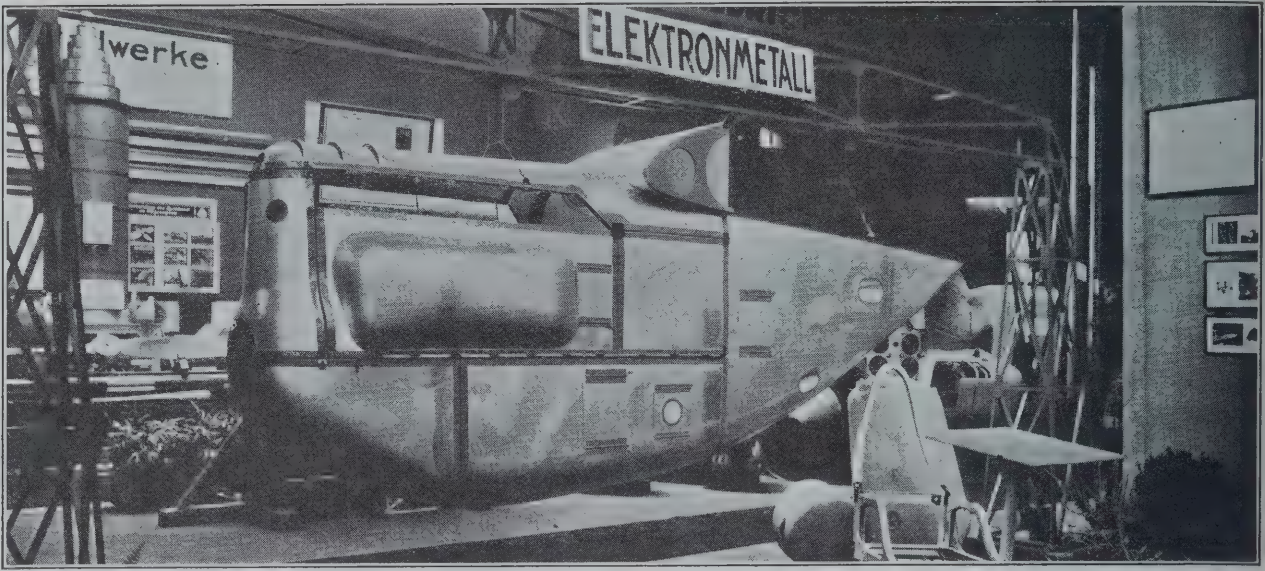


INTERCHANGEABLE WINGS and
A.D.C. CIRRUS MARK III ENGINE.

SIMMONDS AIRCRAFT LTD., SOUTHAMPTON.



LIGHT METAL WORK.—The housing for a motor of a Rohrbach Roland (and other sample pieces) built of the comparatively new magnesium alloy Electron, which is used largely in Germany but is not yet approved by our Air Ministry Experts. Electron is claimed to be lighter than aluminium alloys, and at least as strong for the same bulk.

A CLEAN SHEET.

This comes from a Canadian pilot, as showing that there is joy in cross-country flying there as here :—

'One of our most enthusiastic members, in number of flying hours, proposed to fly with a lady friend to Minnedosa, just over 100 miles away. He wrote his prospective host to mark the spot with a bed sheet for easier identification. The host wrote back that he was willing, for once in a way, to pile stones on his best linen in the middle of muddy fields but would Ed mind phoning the day he was coming as he didn't like the notion of leaving it out all week.

'In due course KB buzzed over Minnedosa and nosed down towards the conspicuous white square. Ed made the best landing of his life and brought his muddy wheels to rest right in the centre of the sheet. He was a little flustered by such unusual accuracy and thought the best thing to do was to taxi off as soon as possible.

'He said his host was really very nice about it, particularly as it was some seconds before he looked round and saw him breasting the slipstream at a smart trot with the evident idea of unwrapping his sheet off the tail-skid.'

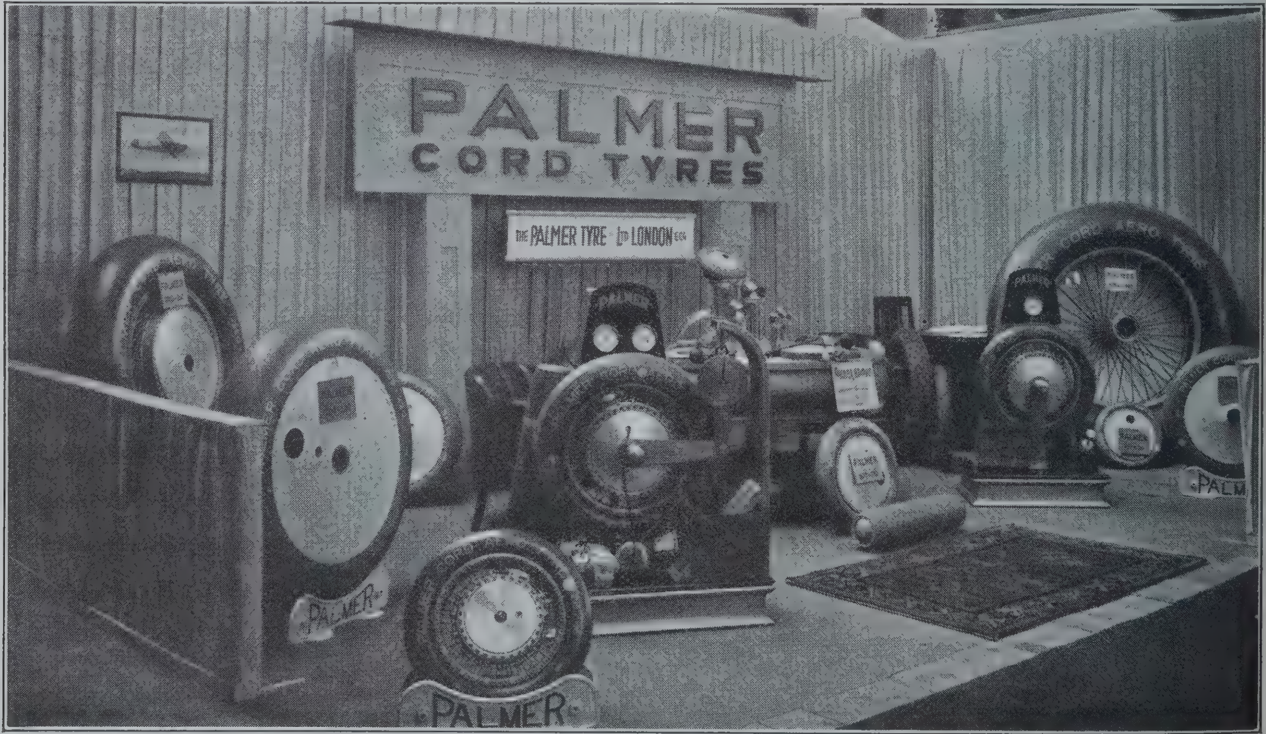
AERO-ENGINES IN THE U.S.A.

Naturally with the enormous increase in aviation in the United States there is a corresponding activity in the American aero-engine trade. Report says that the Wright Company, thanks to the meteoric success of the Whirlwind engine and the increasing popularity of the Cyclone, have increased their factory floor space from 100,000 square feet to 500,000 square feet—a very healthy sign of the times.

Also report says that the Curtiss Company have now perfected a new radial air-cooled engine which is likely to give the products of the Wright Co. and the Pratt and Whitney Co. a good run for their money.

The Reo Automobile firm, well known in the States, are said to be putting on the market for light aeroplanes a four-cylinder-in-line inverted air-cooled engine which ought to be interesting. It has been designed by Mr. Morehouse, formerly of the Wright Co.

Rumour also says that the four-cylinder Fairchild Caminez engine has been discontinued, but that an eight-cylinder model will be put on the market which will get over the vibratory troubles caused by the less frequent impulses of the earlier engine.



THE GROUND-WORK OF BRITISH AVIATION.—The stand of the Palmer Tyre at the Berlin Show. Palmer tyres for years had a monopoly of tyring British aeroplanes, and were the first firm to specialise on such work. To-day the firm is still in the forefront with its pneumatic brake for aircraft,—samples of this are seen in the foreground.

RECORD LONDON TO BERLIN FLIGHT

1,000 KILOMETRES in 4hrs. 52mins.

BERLIN.

Captain Neville Stack, who made the first flight to India in a light aeroplane, made to-day what is claimed to be record time for a non-stop flight in a light aeroplane, and possibly in any aeroplane. He was bringing an urgent message from London to the A.D.C. stand at the International Aeronautical Exhibition in Berlin. In an Avian light aeroplane fitted with a Cirrus Mark III engine of only 85 h.p. he covered the distance of over 1,000 kilometres (620 miles) between London and Berlin without a stop in 4hrs. 52mins.

From "The Times," Oct. 20, 1928.

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A FLIGHT TO PORTUGUESE EAST AFRICA.

On Sept. 5 three officers of the Portuguese Army Air Service, Capt. Pais de Ramos, Lt. Oliviera Viegas, and Lt. Joao Esteves, accompanied by a mechanic, Manuel Antonio, left Lisbon for Portuguese East Africa, flying two Vickers Valparaiso biplanes (Napier Lion engines). The expedition reached Beira safely on Oct. 20.

Information as to the progress of the flight are at present fragmentary.

On the day of departure landings were made at Casablanca and Agadir, both in Morocco, a distance of 1,350 km. (870 miles) covered in 7 hours 50 mins. Some anxiety was caused in Lisbon by a breakdown in the Moroccan postal service which delayed news of their arrival at Agadir for two days.

Cape Juby (Rio del Oro) was reached on Sept. 7, and Villa de Cisneros (Rio del Oro) on Sept. 8.

Port Gentil (Portuguese Equatorial Africa) was reached on Sept. 27, San Thome on Sept. 29, Loanda (Angola) on Oct. 3, and Benguela (Portuguese West Africa) on Oct. 9.

Here the expedition left the west coast to cross the African continent. Minor trouble with petrol pumps occurred at Benguela, and two efforts to start inland had to be made. Despite very bad weather, Silva Porto was reached on Oct. 11. Thereafter the route to be taken was Kozombo, Elizabethville (Belgian Congo), Broken Hill (Rhodesia), Tete (on the Zambesi River, Portuguese West Africa), Beira and Luorenço Marquez. No information has been received as to this section of the journey, except the announcement of arrival at Beira on Oct. 20.

This arrival was made the occasion for the opening of a new civil airport at Beira, which has been named the Pais de Ramos airport after the leader of the expedition.

THE MOTH AIRCRAFT CORPORATION.

The Moth Aircraft Corporation was incorporated under the laws of the State of Delaware on Oct. 17. This company has acquired the sole rights for the manufacture and sale in the United States of the De Havilland Moth aeroplane and Gipsy engine.

The company is authorised to issue 100,000 Participating Cumulative Voting $2.50 Class "A" shares and 100,000 shares Class "B" common stock of no par value. 30,000 shares of the first type and 65,000 shares of the second type are shortly to be offered to the public, having been underwritten by J. A. Ritchie and Co. Inc., and Pratt and Co.

Mr. Minton M. Warren, formerly of Stone and Webster and later chairman of the board of the Aero Supply Co., is President, and Mr. J. E. Morrow, formerly of the Willys-Morrow Company, which made engines for the U.S. Government during the War, is Vice-President of the new company.

LADY HEATH'S ALLEGED HEIGHT RECORD.

The Royal Aero Club announces that the altitude reached by Lady Heath on the D.H. Moth Cirrus III on Oct. 4, 1928, was 5,731 Metres (approximately 18,800 feet).

The official Height Record for light aeroplanes is 6,054 metres (approximately 22,000 feet), set up on July 27 by Capt. Geoffrey de Havilland with Mrs. de Havilland as passenger. The previous record was 5,268 metres (17,300 ft.) set up by Lady Bailey, also in a Moth, with Mrs. de Havilland as passenger.

Lady Heath's machine was not weighed before the start, and so in any case no record could have been claimed, as light aeroplanes in official trials have to be below a certain defined weight.

Thus all who are interested may see that the claims made by Lady Heath in *The Daily Express* to have beaten height records were entirely without justification. Not only did she fail, without a passenger, to reach the height reached with a passenger, but she did not beat any record of any kind. And if she had beaten the figures she could not have claimed the record, because she did not comply with the regulations.

Lady Heath will be well advised if in future she will be content to let her reputation rest on her undisputed ability as a pilot—in which she is quite as good as the average male pilot—and will refrain from using her popularity with the press as a way to acquiring publicity by making claims to performances which are not confirmed when the facts are investigated.—C. G. G.

INTERPLANETARY FLIGHT.

M. Robert Esnault-Pelterie, one of the foremost pioneers of French Aviation and a Member of the Royal Aero Club, will give an illustrated lecture at the Royal United Service Institution, Whitehall, S.W.1, on Wednesday next, Oct. 31, at 2.30 hrs.

The subject of the lecture is "The Exploration of the Upper Atmosphere by Rockets and the Possibility of Interplanetary Flight."

Admission to the lecture is free and tickets can be had from the Royal Aero Club, 3, Clifford Street, W.1.

A WORLD-RECORD ATTEMPT.

On Sept. 29-Oct. 1 Messrs. Brock and Schlee made an attempt to beat the World Duration Record in a Bellanca monoplane (Wright Whirlwind engine). They were compelled to alight after flying for 59 hrs. 8 mins. by lack of fuel, attributed to a petrol leak.

They beat the existing American record of 53 hrs. 36 mins. held by Messrs. Stinson and Haldeman, but failed to exceed the World's Record of 64 hrs. 25 mins. put up by Herrn. Risticz and Zimmermann in July of this year on a Junkers.

LISBON TO BEIRA.—The Portuguese Aviators and one of their Vickers Valparaisos (Napier Lion) whose journey is recorded above.

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AERO ENGINES

"Those who saw the beautiful 'Wizard' Monoplane fitted with this (Rolls-Royce) Engine leap skyward when the pilot opened his throttle gained some idea of what the 'F' Engine enables designers to accomplish."

Daily Mail
2nd July
1928

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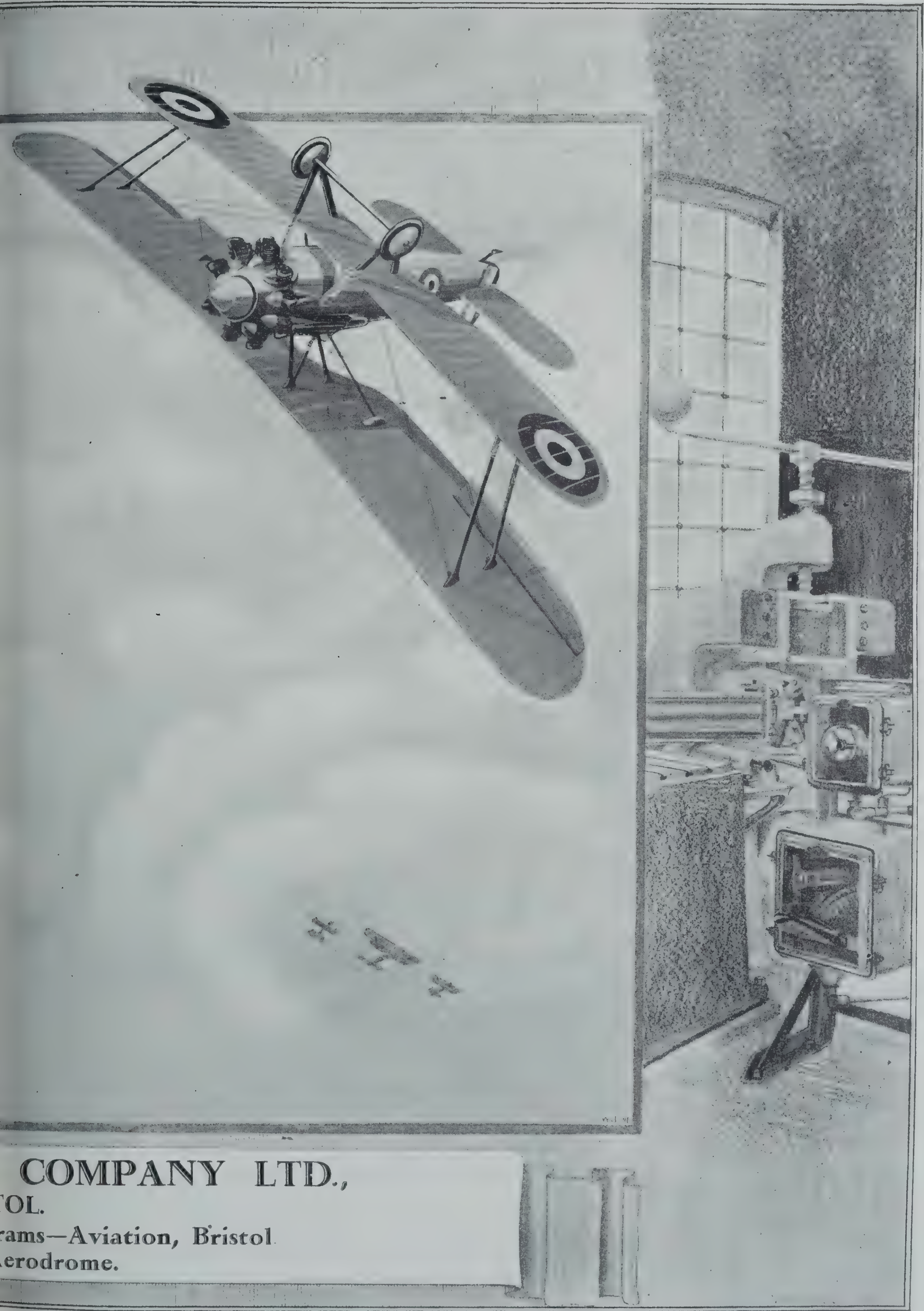

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THE ROYAL AIR FORCE.

The London Gazette.

October 16.

Royal Air Force.

General Duties Branch.—The following are granted S.S. comns. as Plt. Offs. on probation with effect from and with seniority of Oct. 12:—M. H. Ballantyne, R. J. T. Barrett, J. Cherrill, D. H. V. Craig, E. J. Finnegan, T. Gadd, R. P. Garnons-Williams, C. R. J. Hawkins, M. T. M. Hyland, J. O. H. Lobley, L. T. Milner (Sec. Lt., 5th Bn., K.O.Y.L.I., T.A.), B. A. Oakley, P. B. Rogers, J. D. H. Slade, J. R. Stebbing, A. T. Wilson, D. A. Woolfe, A. N. I. Worger-Slade.

The following are granted temp. comns. as Flg. Offs. on seconding for four years' duty with the R.A.F. (Oct. 2):—Lt. F. J. P. Dewhurst, Royal Tank Corps; Sec. Lt. A. J. W. Geddes, R.A. Plt. Off. E. C. Lewis is promoted to the rank of Flg. Off. (July 10); Plt. Off. R. Brown is promoted to the rank of Flg. Off. with effect from Aug. 15 and with seniority of June 11; Plt. Off. J. R. Mutch is promoted to the rank of Flg. Off. with effect from Sept. 11 and with seniority of June 11; Plt. Off. F. D. Biggs is promoted to the rank of Flg. Off. with effect from Aug. 15 and with seniority of June 11 (substituted for the notification in the *Gazette* of Sept. 11).

Plt. Off. J. A. H. Louden resigns his perm. comn. (Oct. 17).

The S.S. comn. of Plt. Off. on probation G. R. Chameroy is terminated on cessation of duty (Sept. 22) (substituted for the notification in the *Gazette* of Sept. 25).

Medical Branch.—The following are granted S.S. comns. as Flg. Offs. for three years on the active list with effect from and with seniority of Oct. 2:—J. L. Groom, N. M. Jerram, G. W. Paton, M.B., R. W. N. Robins, B.A., M.B. (since deceased), G. O. Williams, B.Sc. Flg. Off. P. B. L. Potter, M.B., ceases to be seconded to the Princess Alice Memorial Hospital, Eastbourne (Oct. 2).

Chaplains Branch.—The Rev. J. H. Ogilvie, M.A., is granted a S.S. comn. as a Chaplain, with the relative rank of Sq. Ldr. (Oct. 10).

Reserve of Air Force Officers.

General Duties Branch.—Plt. Off. on probation J. Reekie is confirmed in rank (Oct. 11); Flg. Off. C. H. L. Needham is transferred from Class AA to Class B (Aug. 13); Flg. Off. B. S. Wilcox, D.F.C. is transferred from Class A to Class C (Sept. 24); Plt. Off. W. D. Brookes resigns his comn. (Sept. 14); Flg. Off. L. S. Webb relinquishes his comn. on completion of service (Oct. 13); the comn. of Plt. Off. on probation R. M. Clark is terminated on cessation of duty (Sept. 25).

Appointments.

Week ending Oct. 22.

General Duties Branch.—Group Captain H. R. Busteed, O.B.E., A.F.C., to No. 482 Flight, Cattewater, to command, 8/10.

Squadron Leader A. D. Pryor, to No. 1 Indian Group, H.Q., 4/10.

Flight Lieutenants J. McBain, D.F.C., to No. 1 Indian Group H.Q., 4/10. H. Hackney, to School of Naval Co-operation, Lee-on-Solent, 1/8. H. W. St. John, D.F.C., to R.A.F. Base, Calshot, 13/10. G. C. Gardiner, D.F.C., to R.A.F. Depot, Uxbridge, 10/10. W. H. Markham, to R.A.F. Station, North Weald, 15/10. O. E. Worsley, to R.A.F. Depot, Uxbridge, 10/10. J. B. P. Angel, to R.A.F. Depot, Uxbridge, 19/9. H. G. Brookman, to R.A.F. Depot, Uxbridge, 28/8. B. Ankers, D.C.M., to No. 11 Sqdn., Netheravon, 2/10. A. R. Jones, to R.A.F. Depot, Uxbridge, 1/10. R. C. Wansbrough, to R.A.F. Depot, Uxbridge, 9/10. W. C. Yale, to R.A.F. Depot, Uxbridge, 9/10. W. Wynter-Morgan, M.C., to H.Q., A.D.G.B., Uxbridge, 16/10.

Flying Officers B. S. Brice, A.F.C., to Home Aircraft Depot, Henlow, 8/10. R. F. J. Strange, to R.A.F. Transjordan and Palestine H.Q., on appointment to a S.S. Comn., 29/9. E. R. H. Coombes, to R.A.F. Depot, Uxbridge, 27/10. H. D. Gunton, to R.A.F. Base, Calshot, 17/10. J. E. Preston and H. Thomas, to R.A.F. Depot, Uxbridge, 24/9. H. T. Messenger, to R.A.F. Depot, Uxbridge, 21/9. G. W. R. Russell, to No. 2 F.T.S., Digby, 19/9.

Pilot Officer N. A. Pearce, to No. 12 Sqdn., Andover, 9/10. The undermentioned Pilot Officers are posted to the R.A.F. Depot, Uxbridge, on appointment to S.S. Comns. (on probation), with effect from 12/10:—M. H. Ballantyne, R. J. T. Barrett, J. Cherrill, D. H. V. Craig, E. J. Finnegan, T. Gadd, R. P. Garnons-Williams, C. R. J. Hawkins, M. T. M. Hyland, J. O. H. Lobley, L. T. Milner, B. A. Oakley, P. B. Rogers, J. D. H. Slade, J. R. Stebbing, A. T. Wilson, D. A. Woolfe, and A. N. I. Worger-Slade.

Medical Branch.—Wing Commanders A. E. Panter, B.A., to H.Q., Aden Command, 9/10. H. W. Scott, M.B., B.A., to Air Ministry (Directorate of Medical Services), 9/10.

Squadron Leader R. A. G. Elliott, M.B., D.P.H., B.A., to School of T.T. (Men), Manston, 29/10.

Flight Lieutenants A. Dickson, M.B., to R.A.F. Depot, Uxbridge, 19/9. C. G. J. Nicolls, M.B., to Aircraft Depot, India, 13/9. E. A. Rice, M.B., to R.A.F. British Hospital, Aden, 9/10. Flight Lieutenant (Dental) W. R. Wotton, to R.A.F. British Hospital, Aden, on appointment to a Temp. Comn., 1/7. Flight Lieutenant (Q.M. Medical) J. M. Maxwell, to R.A.F. Hospital, Cranwell, 9/10.

Flying Officers G. H. J. Williams, to A.A.E.E., Martlesham Heath, 5/10. B. B. Kennedy, M.B., to R.A.F. Station, Duxford, 20/10. M. Clancy, to R.A.F. Base, Gosport, 29/10. F. E. Lipscomb, to R.A.F. British Hospital, Aden, 9/10. J. H. Cullinan, to R.A.F. British Hospital, Aden, 9/10. Flying Officer (Q.M. Medical) W. King, to R.A.F. British Hospital, Aden, 9/10.

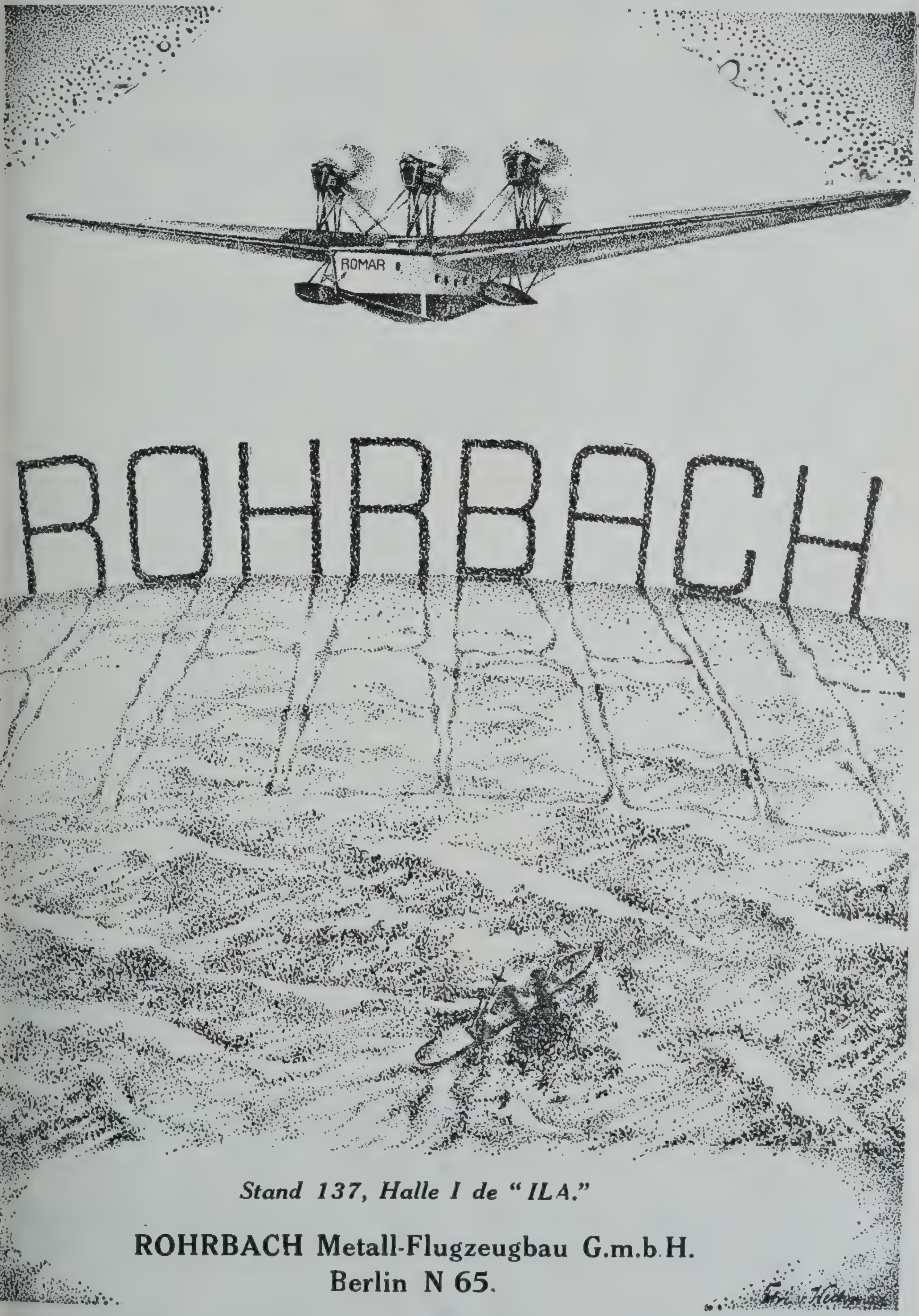
Stores Branch.—Flight Lieutenants G. A. Curtis, to Air Ministry (Directorate of Equipment), 22/10. S. D. Dennis, to R.A.F. Depot, Uxbridge, 8/10. T. J. Organ, to No. 3 Stores Depot, Milton, 11/10.

Flying Officer P. H. Burt, to No. 1 School of T.T. (Apprentices), Halton, 22/10.

Accountant Branch.—Squadron Leader E. W. Gregory, M.C., to R.A.F. Depot, Uxbridge, 15/10.

Chaplains Branch.—The Rev. J. H. Ogilvie, M.A., to R.A.F. Depot, Uxbridge, on appointment to a S.S. Comn., 10/10.

REFLECTIONS.—One of the Supermarine Southampton flying-boats (two Napier Lion engines) of the Far East Flight alighting on smooth water near Sydney, N.S.W.



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Sir Philip Sassoon's Voyage.

Sir Philip Sassoon, Under-Secretary of State for Air, who is making a tour of the R.A.F. Stations in the Middle East, 'Iraq and India, flew to New Delhi and Ambala on Oct. 17. He went by train to Simla on Oct. 18, where he stayed with the Viceroy.

On Oct. 21 he went to Lahore and thence flew to Peshawar in a Handley Page Hinaidi escorted by a flight of D.H.9as.

At Lahore he inspected the Aircraft Park and at Peshawar he visited No. 20 (Army Co-operation) Squadron.

The Aden Command.

The R.A.F. Appointments list this week shows a marked increase in the establishment of Medical Officers of the R.A.F. at Aden. This seems to indicate that the military hospital at Aden, in common with the other British Forces in Aden, is to come under R.A.F. command.

The R.A.F. are responsible for the military hospitals in 'Iraq and Palestine. In India and Egypt the R.A.F. are accommodated in Army hospitals. The R.A.F. British Hospital, Aden, is presumably a new responsibility undertaken by the R.A.F.

The Cattewater Flight.

The appointment of Group Capt. H. R. Busteed, O.B.E., A.F.C., to 482 Flight, Cattewater, to command on Oct. 8, 1928, indicates renewed activity at the old war-time base at Cattewater and the formation of a new Unit. Although the Air Ministry are not at the moment prepared to announce the ultimate destination of No. 482 Flight, it is very widely rumoured that the Flight will be equipped with Blackburn Iris flying-boats and will be based in the Persian Gulf.

The Coast Defence Co-operation Flight.

The Coast Defence Co-operation Flight, which was temporarily located at Shoeburyness, has now returned to Eastchurch.

Medium Service.

The following short-service officers of the General Duties Branch have been selected for and have intimated their willingness to accept appointments to Medium Service under the provisions of Weekly Order 427 of 1928. A description of this system appeared in The Aeroplane of June 27, 1928. Their entry into Medium Service takes effect from the dates indicated against their names :—

Flt. Lts. C. N. C. Dickson, A.F.C. (Oct 18, '28); E. R. Maddox, M.C. (Mar. 25, '29).

Flg. Offs. J. R. Brown, D.F.C. (Aug. 4, '28); R. W. E. Bryant (Jan. 14, '29); C. Feather (Mar. 15, '29); R. F. Francis (July 15, '29); A. F. Lingard (Oct. 25, '28); H. R. Lowry (Mar 15, '29); G. D Middleton (July 15, '29); F. W. Moxham (Jan. 14, '29); W. J. Pearson (Nov. 10, '28); A. G. Pickering, A.F.C. (July 15, '29); H. W. Raeburn (Jan. 3, '29); C. F. Steventon (Jan. 14, '29); H. W. Taylor (Feb. 11, '29); H. Thomas (Jan. 3, '29).

Special Assessments.

The undermentioned officers and airmen have been awarded special assessments as shown hereunder on completion of a course of *ab initio* flying training at the units indicated :—

Special Distinction.—Plt. Off. G. F. Simond, Plt. Off. J. C. K. Rogers, Plt. Off. P. N. Sealy Allin, No. 5 F.T.S.; No. 362870 L-AC. Cleland, R., No. 19 (Fighter) Sqdn.

Distinguished Pass.—Plt. Off. J. E. Markby, No. 5 F.T.S.; Sub-Lt. G. W. Dennis, R.N., Flg. Off., R.A.F., R.A.F. Training Base, Leuchars; No. 362757 L-AC. Lott, C. G., No. 19 (Fighter) Sqdn.; No. 361850 L-AC. Berry, F. W., No. 29 (Fighter) Sqdn.; No. 363141 L-AC. Lobley, C., No. 111 (Fighter) Sqdn.

Notations have been made in the official records of these officers and airmen.

Extensions of Service.

The undermentioned officers have been selected for extension of the active list period of their short service commissions as indicated. These extensions are in substitution of any previously notified :—

Stores Branch.—(*Extension to 8 years*) : Flg. Off. G. W. Longstaff. (*Extension to 6 years*) : Sq. Ldr. A. Davidson, M.C.

Medical Branch.—(*Extension to 5 years*) : Flt. Lt. R. J. I. Bell, Flt. Lt. E. A. Rice, M.B.

Night Flying in Kent.

Air Ministry *Notice to Airmen* No. 71 of 1928 states :—

Pilots are warned that a Service aircraft may be flying over the area comprised within a circle of 10 miles radius from Biggin Hill aerodrome, after 21.00 hours on any night during the period Oct. 22 to Dec. 22.

Above an altitude of 4,000 feet, the aircraft will not exhibit navigation lights.

Attention is drawn to the fact that the area in question *includes Croydon aerodrome.*

The R.A.F. Display Secretary.

The office of the Secretary of the R.A.F. Display Committee (Lt.Col. A. D. M. Browne, D.S.O., O.B.E.) has been moved to the R.A.F. Station, Hendon, as from Oct. 15, 1928. Telephone : Colindale 6361; Extension 18.

Wing Commander Cunningham.

Wing Commander A. D. Cunningham, C.B.E., whose appointment to command No. 5 Flying Training School, Sealand, is dated October 1, was born in 1888 and educated at Bedford Grammar School, Stubbington House, Fareham, and in H.M.S. *Britannia.* He entered the Royal Navy as a midshipman in 1904 and was promoted sub-lieutenant in 1907 and lieutenant in 1910. In July 1914 he transferred to the R.N.A.S. (airships), and was appointed Flight Commander in May 1915 and Squadron Commander in June 1915.

In the earliest days of the War he acquired high repute in the Service by the regularity of the patrols made over the Channel and the North Sea, from Kingsnorth to the Belgian Coast, by the Parseval airship (bought by us from Germany a year or so earlier), which he commanded. In 1916 he directed the construction and trials of a new type of SS. airship at Capel, Folkestone. This ship, the *Zero,* was used with success for gunnery spotting in France and for anti-submarine patrols.

He was promoted Wing Commander, R.N.A.S., in December 1917 and Lieutenant-Commander, R.N., in June 1918. In 1919 he was employed in the Airship Department of the Admiralty with the acting rank of Lieutenant-Colonel R.A.F. He was made an Officer of the British Empire in June 1919 and promoted Commander of the British Empire in October 1919 in recognition of distinguished services during the War. In August 1919 his name was removed from the Navy List on appointment to a permanent commission in the R.A.F. with the rank of Wing Commander.

He served in the Directorate of Equipment, Air Ministry from 1920 until he was appointed to H.Q. 'Iraq Command for Personnel Staff Duties. In July 1924 he was restored to the Home Establishment for duty in the Directorate of Personal Services, Air Ministry.

In common with certain others of the younger and keener airship officers he learned to fly aeroplanes after the War and became a competent and persistent aviator.

A COASTAL RECONNAISSANCE PATROL.—Three Supermarine Southampton flying-boats of the R.A.F. Base, Calshot, approaching the slipway for one of their daily patrols of the English Channel.—(*"Aeroplane" photograph.*)

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Wing Commander J. T. Babington.

Wing Commander J. T. Babington, D.S.O., *p.s.a.*, whose appointment to Station Headquarters, Hinaidi, 'Iraq, pending taking over command, is dated Sept. 28, was born at Marylebone in 1891 and educated at the Royal Naval College, Osborne, and at Dartmouth. He entered the Royal Navy as a midshipman in 1908 and was promoted to Sub-Lieut. in 1911 and Lieutenant in 1913. He learned to fly on a Short biplane in the early days at Eastchurch, before the R.N.A.S. existed. His Royal Aero Club certificate, No. 408, is dated Jan. 21, 1913. In March 1913 he was appointed Flying Officer, R.F.C., Naval Wing. During May 1913 he acted as pilot to the Short seaplane in which the Admiralty were testing a wireless installation. In October 1914 he went to Dunkirk and thence was detailed to take part in the raid on Friedrichshafen. In his description of this raid in the first volume of *The War in the Air*, Sir Walter Raleigh wrote :—

> The pilots deserve all praise for their admirable navigation, and the machines must not be forgotten. There have since been many longer and greater raids, but this flight of 250 miles, into gun-fire, across enemy country, in the frail little Avro with its humble horse-power, can compare as an achievement with the best of them, and some part of the credit must be spared for those who planned it and for those who tended and prepared the machines.

For his part in the Operations Flt. Cdr. Babington was made a Companion of the Distinguished Service Order.

In April 1915 he returned to Dunkirk and was promoted Squadron Commander. In May 1916 he was made a Chevalier of the Legion of Honour (France) and awarded the Croix de Guerre. From December 1916 to December 1917 he served in France with the R.N.A.S. and was made acting Wing Commander in January 1918. On the formation of the R.A.F. he was made Major and temporary Lieut.-Colonel and in August 1919 his name was removed from the Navy List on appointment to a permanent commission in the R.A.F. with the rank of Squadron Leader.

In June 1919 he joined the Staff of the Aeronautical Commission of Control in Germany. He was promoted to be Wing Commander in June 1922. In April 1922 he was posted to the R.A.F. Depot, Uxbridge, and in January 1924 to H.Q. No. 3 Group, Spittlegate. In 1924-5 he attended a course at the R.A.F. Staff College, Andover, and in November 1925 he was posted to H.Q. 'Iraq Command for Personnel Staff Duties. In March 1927 he was appointed to command the R.A.F. Base, Gosport.

Wing Commander Babington won the third prize and a special prize in the R. M. Groves Memorial Prize Essay Competition of 1922.

Wing Commander Maude.

Wing Commander C. E. Maude, whose appointment to H.Q., Coastal Area, for the Senior Officers' Technical Course at H.M. Dockyard, Portsmouth, is dated Sept. 28, was born at Walton, Surrey, in 1890 and educated at Winton House School, Winchester, and in H.M.S. *Britannia*. He entered the Royal Navy as a midshipman in 1906. He joined the R.F.C. (Naval Wing) in 1913 and learned to fly on an Avro biplane at the Central Flying School at Upavon. His Royal Aero Club certificate, No. 529, is dated June 26, 1913. He was posted to Gt. Yarmouth Air Station the same year.

He was appointed Flight Lieutenant in July 1914, Flight Commander in September 1914, and Squadron Commander in December 1916. In August 1914 he was detached from Gt. Yarmouth to the Admiralty Air Department. He served in France from October 1917 to March 1918 and in the Mediterranean from March 1918 until October 1919. He was promoted Lieutenant Commander in November 1918, and in August 1919 his name was removed from the Navy List on appointment to a permanent commission in the R.A.F. with the rank of Squadron Leader.

In November 1919 he was posted to H.Q. No. 10 Group, Lee-on-Solent. From 1922 to 1924 he was in the Department of the Deputy Director of Personnel, Air Ministry, and in October 1924 he was appointed to command the School of Naval Co-operation at Lee-on-Solent. He was promoted Wing Commander in July 1924. In January 1927 he went to China in command of the R.A.F. Unit in H.M.S. *Argus*.

Ivor Curtis.

All who have been in any way interested in the education of the Royal Air Force, and more especially those who know how much has been done to provide for the welfare of officers and men who leave the Service, will learn with sorrow of the death of Col. Ivor Curtis, the Educational Adviser to the Air Ministry. Col. Curtis was at work as usual on Wednesday of last week, and died suddenly that evening.

Ivor Curtis was for 20 years in the Education Branch of the Royal Navy, the last ten years of which he was Deputy Inspector of Naval Schools. In 1918 he went to the Air Ministry to take charge of Education in the R.A.F. and was given the rank of Colonel, R.A.F. In 1920 he retired from the Royal Navy on appointment in a civilian capacity as Educational Adviser to the Air Ministry. Since then he has been engaged in building-up the education scheme in the R.A.F. He was closely associated with the scheme for entering boys from the secondary and other schools for training as Aircraft Apprentices in the R.A.F. He was also associated with the development of the scheme for general and vocational education in all Units in the Service.

More recently he was responsible for the establishment of an Association for placing Short Service officers in employment in civil life at the end of their term of service. This last part of his work had already had a large measure of success and is undoubtedly destined to have a far-reaching effect on the general good of the Service.

He was made a Commander of the British Empire in 1925.

R.A.F. SPORTS AND PASTIMES.

Boxing in Palestine.

An inter-Services Boxing Tournament was held at Ramleh, Palestine, on Sept. 22. The officials were :—

Referees : Flt. Lt. R. M. Davy and Flt. Lt. H. E. Walker, M.C., D.F.C. Judges : Flt. Lt. H. J. Brown, Flg. Off. R. A. A. Cole, Mr. R. H. Bennett and Mr. A. Taylor. Timekeepers : The Rev. J. F. Cox and Sjt. J. Gibson, D.C.M. Chief Whip : F-S. H. A. Wright. Ring Master : Cpl. D. Barrett.

The various bouts are described by a spectator as follows :—

Sig. E. Ellison v. Sig. Hancox (R.C. of Signals) :—A keen fight with some hard hitting, with Hancox the more experienced. Ellison seemed to tire towards the end and the verdict was given to Hancox.

L/Cpl. Hancock (R.C. of S.) v. L-AC. Rose (No. 14 Sqdn.) :—Rose was too eager and was soon worn out by the skilful side-stepping and defensive tactics of the Army man, whose defensive powers saved him much energy, while he easily won on points.

Cpl. Cardwell (No. 2 A.C. Coy.) v. L-AC. Gilmore (No. 14 Sqdn.) :—Here we were treated to some more skilful defensive and countering work on the part of Cardwell, who outclassed a plucky opponent and so made his way to the final.

A.B. Miller (H.M.S. "Eagle") v. Marine Boom (H.M.S. "Eagle") :—A very enjoyable contest with both men showing the spectators all they wanted in the way of hard hitting. Though these men were light-heavies their speed and agility were remarkable. A.B. Miller secured the verdict at the close of three rounds.

AC.1. Price (No. 14 (B) Sqdn.) v. Sig. Harthill (R.C. of S.) :—Two very plucky bantams who were so well matched that Price, who is a right-handed boxer, was very narrowly the leader on points. An interesting contrast between right-handed and left-handed style.

"Permanganate" v. "Potash" :—Our pugilistic fellaheen, not billed as a comic contest, but we were all convulsed with mirth throughout the three rounds.

AB. Bowden v. A.V. Ford (H.M.S. "Eagle") :—A very interesting display by two of the fastest and most scientific bantams we have seen for a long while. Both men were trained to the minute and gave of their very best. Bowden was a much younger man and was just able to gain the decision after an extra round.

Const. Richie v. Const. Stanners (P.P. Brit. Sect.) :—An exhibition or rather no-decision contest, somewhat tame after seeing the previous bout.

Final Feathers.—L-AC. Reynolds (No. 2 A.C.C.) v. L-AC. Davy (No. 14 Sqdn.) :—Squadron versus Cars again. Hard and rapid hitting characterised this meeting and both men were almost beaten when the final gong rang and Reynolds obtained the verdict.

Final Welters.—Cpl. Cardwell (No. 2 A.C.C.) v. Sig. Steele (R.C. of S.) :—Cardwell's second fight this night. Steele was tenacious but took a count of eight from a heavy punch to the solar plexus. After this Cardwell was very aggressive and watching his chance finished the fight with a hard punch to the heart.

Final Middles.—L-AC. Harris (Palestine Gen. Hosp.) v. L-AC. Warner (No. 2 A.C.C.) :—The Hospital man tried shock tactics,—with the first blow he floored his man, who took a long count and resumed very dazed. Harris came in again, and forcing his man hit him clean through the ropes. Although L-AC. Warner's style leaves little to be desired, a crouch would improve his defence.

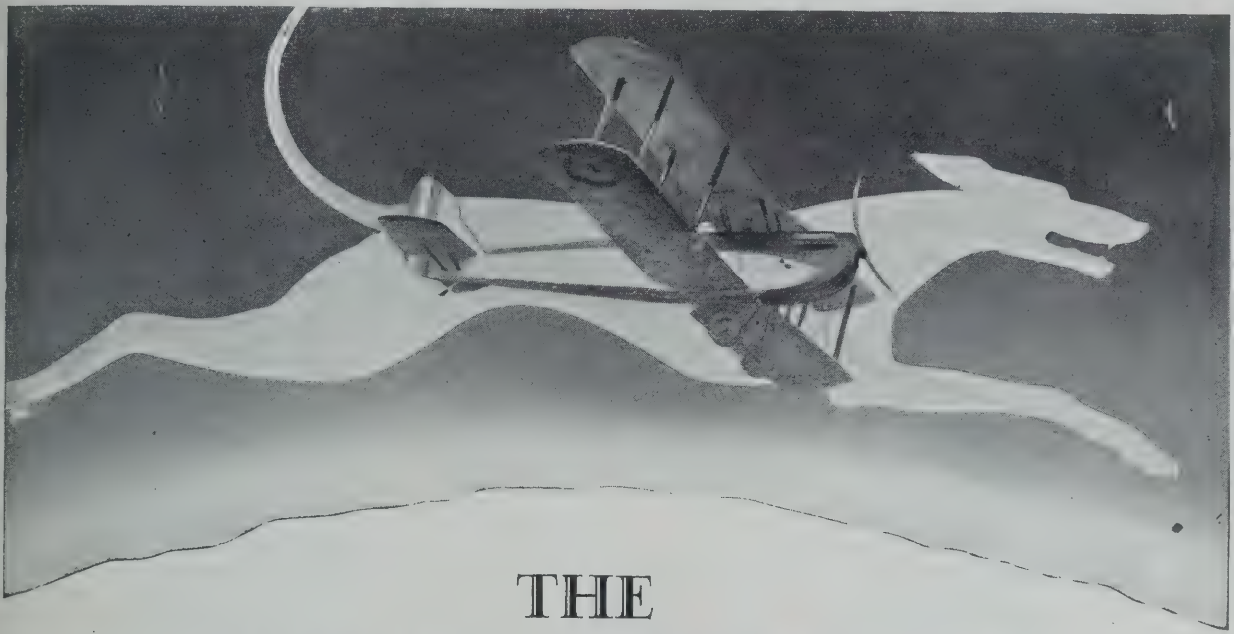
Final Lights.—Sig. H. Hancock v. L/Cpl. Hancock (R.C. of S.) :—A very good fight. Both men fit and keen, with the Corporal holding the fight well in hand, and treating us to a fine exhibition of side-steppping and clean hitting; won the fight with something to spare.

Final Heavies.—Cpl. Barrett (No. 2 A.C.C.) v. Sig. Honeybourne (R.C. of S.) :—Here we saw some of the hardest hitting of the evening. Cpl. Barrett being the superior boxer and carrying the heavier punch eventually knocked his man out in the second round, after administering a lot of punishment.

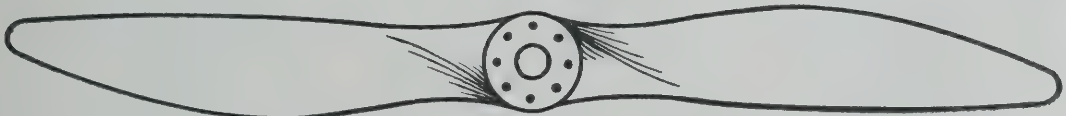
Exhibition Contests.—Two exhibition contests followed; these were by men from H.M.S. *Eagle*, and ended the most enjoyable boxing meeting held here for a long time. The very high class of boxing shown by the sailors was much appreciated and the sporting spirit shown by all the competitors was a matter for great satisfaction.

L-AC. Rose (No. 14 Sqdn.) was awarded the best loser's prize.

Group Captain L. B. B. Rees, V.C., presented the prizes. Three hearty cheers were given for the Navy, who, not to be outdone, replied in a spirited manner.



THE THREE WORLD'S AIR SPEED RECORDS



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ANOTHER NORTH ATLANTIC FAILURE.

Lt. Cdr. H. C. Macdonald, R.N. (retd.), left Newfoundland on the afternoon of Wednesday, Oct. 17, on his De Havilland Moth aeroplane (Gipsy engine) with the intention of flying to Stag Lane.

The machine was the same as that recently used by Mr. Hubert Broad in making a non-stop flight of 24 hours, and carried petrol for at least that period at normal cruising speed and for much more at its most economical speed. According to weather reports the machine should have had a favouring wind of about 30 m.p.h. behind it over the intended route.

The s.s. *Hardenberg* reported by wireless having seen an aeroplane at 03.00 hrs. G.M.T. in longitude 41.30 W. and latitude 53.29 N. This position is about 600 miles out from Newfoundland and far north of the direct route for Ireland. Continuance on the same course would have taken the machine over Iceland.

Since then nothing has been heard of Lt. Cdr. Macdonald, though a good deal has appeared in the daily press about his family. There is just a possibility that he may have landed somewhere in Iceland, or he may have been picked up by a ship without wireless, as was Mr. Harry Hawker. If he has not, then we can only assume that one more foolish attempt to acquire notoriety has come to a bad end.

MISS O'BRIEN'S ACCIDENT.

Miss S. J. M. O'Brien, and Miss M. K. Leith, were both seriously injured in an accident to Miss O'Brien's Moth G-EBOS on Saturday, Oct. 20.

The machine was flying at a moderate height over the Mote Mount golf course, near Mill Hill, Middlesex, when, according to spectators, the engine stopped, the machine stalled and spun into the ground.

Spectators of a golf match then in progress who went to give assistance found Miss O'Brien practically unconscious, with a badly crushed leg, and Miss Leith in a conscious, but seriously injured condition.

The two victims were taken to Redhill Hospital, where it was found necessary to amputate Miss O'Brien's leg. The most recent reports concerning her state that Miss O'Brien is in a serious condition, but is as comfortable as can be expected. Miss Leith is suffering from concussion, but is making satisfactory progress.

All those who know Miss O'Brien as one of the most hard-working of women pilots will extend to her their sympathy in this accident and their hopes for an early recovery.

[Miss O'Brien, who is a daughter of Sir Timothy O'Brien, D.L., of the County Cork, holds from the Air Ministry a Class B licence to "fly for hire or reward." With all due respect for her energy and perseverance, and for her personal amiability, regard for the best interests of aviation compels one to say that an accident to Miss O'Brien through stalling her machine had for long been regarded as possible. Regret for her personal injury is none the less sincere because of the opinion of observers of flying that her flying was at times unsafe. There is the further consideration that slotted wings would have made the accident less serious.—C. G. G.]

SOME FACTS ABOUT THE BERLIN—TOKYO FLIGHT

The Swedish Pilot Lindner, who left Berlin for Tokyo on Sept. 18 with Baron von Hünefeld as passenger in a Junkers W.33 monoplane (Junkers L5 engine) of the same type as that in which the first East to West crossing of the North Atlantic was made, landed about 17 miles from Tokyo on the afternoon of Oct. 18.

He had flown from Shanghai in some seventeen hours without a stop, for the last seven hours through heavy rain. He had great difficulty in crossing the Hakune mountains owing to bad visibility, and when he finally reached Tokyo at 14.00 hours the landing ground was obscured by low clouds.

Lindner therefore landed on some waste ground near the Tama river, and damaged his airscrew and undercarriage. Newspaper reports say that the Baron was feverish from fatigue after his long and trying flight, but they omit to say anything about the gallant Swedish pilot who did the piloting.

All the newspapers report the flight as though Baron von Hünefeld were the pilot. As a matter of fact, although he qualified some few months ago as a civil pilot on a Klemm-Daimler monoplane with 20 h.p. engine, he is hardly as yet in the World-Flight category. But he deserves full credit for his physical and financial courage in tackling the Atlantic and Asiatic flights. Lindner, on the other hand, is one of the finest pilots in Europe, but so modest that his name is hardly known outside his own circle.

THE FLIGHT OF THE "GRAF ZEPPELIN."

According to reports from New York, Dr. Eckener and other responsible members of the crew of the *Graf Zeppelin* deny that anybody on the ship was airsick during the voyage and state that the movements of the ship were of such a kind that nobody could have been made unwell.

Reports that there was a shortage of drinking water are also said to be unfounded.

The accident to the fin naturally aroused some uneasiness, but all passengers accepted Dr. Eckener's assurance that there were no grounds for fear. To avoid risk of further stripping of the fabric it was considered wise to fly at the speed at which the ship kept uniform altitude with no load on its horizontal fins, which meant reducing speed from 70 to 50 m.p.h.

This reduction in speed, together with the strong adverse winds between Bermuda and America, accounted apparently for the serious delay which occurred on this section of the voyage.

More uneasiness was felt on the day before the accident than when the accident occurred, as apparently there was some doubt as to the airship's exact position, presumably caused by failure to pick up the Bermudas as early as had been hoped.

Much of the anti-Zeppelin feeling displayed by the American papers,—which complained of lack of news from the ship,—was due to the fact that the Hearst group of newspapers had bought what journalists call the "story" of the voyage at a price which will cover most of the cost. Mr. Hearst (who, one gathers, handled the deal himself) deserves his "scoop," if only for financing in this way an undertaking which should have been backed by a combination of Big Business interests in Europe and America because of its ultimate importance to International Communication.

In an able article in the *Observer* on Sunday Lord Thomson impresses on the British Public all those points in favour of the Zeppelin with which readers of last week's The Aeroplane are already familiar. This should be a useful counterblast, so far as intelligent readers are concerned, to the half-truths and misleading fatuities of "Neon" in *The Daily Mail*.

Sir Samuel Hoare, Secretary of State for Air, sent the following message to the German Government on Oct. 16:—

> Air Council tender hearty congratulations on successful completion of *Graf Zeppelin's* notable voyage to America.

THE CHIEF OF THE REGIA AERONAUTICA.

General the Marchese de Pinedo has been appointed Chief of Staff of the Regia Aeronautica (the Italian Royal Air Force) in succession to General Armani, who has resigned on the grounds of ill-health. General Armani was seriously injured in a flying accident in July 1928.

The Marchese de Pinedo flew from Rome to Melbourne and thence to Tokyo and back to Rome in 1925. In 1927 he flew round across the South Atlantic, down to the Argentine, up the middle of South America and along Central America to the United States, where he had a very narrow escape when his machine was burned in Arizona. In a new Savoia he flew back to Rome by way of the Azores.

The British Air Force Cross was conferred on him last year by His Majesty King George. Last week the Distinguished Flying Cross of America was awarded to him by President Coolidge.

NEW AUSTRALIAN EQUIPMENT.

The Royal Australian Air Force has selected the Westland Wapiti (450 h.p., Bristol Jupiter VIII engine) as their standard general purpose machine and have placed an order for twenty-eight of this type with the Westland Aircraft Works, of Yeovil, Somerset.

These machines will have steel fuselages with wooden wings and tail surfaces, and will be equipped with the Handley Page automatic slot.

The Wapiti carries a useful load of 1,808 lbs., and has a top speed of 133 m.p.h. at 5,000 ft. and a landing speed of 47 m.p.h. With full load it climbs to 10,000 ft. in 10 mins. and at full throttle has a range of 500 miles.

FIRST BRITISH FLIGHTS.

The special committee of the Royal Aero Club which, as already announced, is to investigate the evidence concerning early British aeroplane flights in the hope of coming to a conclusion as to who actually first flew in Great Britain is to hold its first meeting in November.

The Committee consists of Lord Gorell, who was Under-Secretary of State for Air in the last Liberal Government, Capt. Geoffrey de Havilland, himself one of the earliest designer-pilots in this country, and Lt.-Col. Lockwood Marsh, at one time Secretary of the Royal Aeronautical Society.

The late Sir John Alcock made the first direct aeroplane flight across the Atlantic—1,850 miles, on the 14th and 15th June, 1919. He used Shell Petrol.

Capt. Pelletier D'Oisy—Paris, Rome, Tunis, Casablanca, Madrid, Paris—3,700 miles in 40 hours, on the 24th and 25th August, 1926. He used Shell Petrol.

Commandante F. de Pinedo flew from Rome to Australia via India, round Australia to Tokio and back to Rome—34,000 miles, April to November, 1925. He used Shell Petrol.

First direct East to West Atlantic flight made by Capt. Koehl, Baron Von Huenefeld and Commandant Fitzmaurice, April 12th and 13th, 1928. Lubrication by Shell.

Mr. Bert Hinkler, London to Port Darwin, Australia, in 15½ days, February 7th to 22nd, 1928. He used Shell Petrol.

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AIR MAILS TO THE EAST.

The following article from *The Singapore Free Press* of Sept. 15 will be found of interest by all concerned with commercial aeronautics and especially by those in this country who, for diplomatic, political, financial, commercial or technical reasons have been such a long time starting our Imperial Airway to India and Australia :—

Dutch Air Mails.

The aeroplanes forming the first Dutch air mail service are well on their way to their destination in the Dutch East Indies bringing with them the first consignment of regular air mails for Java that has ever left Europe for the Far East. To-day the aeroplanes reached Baghdad where, according to Reuter, they will embark 'Iraq mails for Persia, India, Malaya and beyond. Thus, Malaya's share in this new undertaking will be a very meagre one for the quantity of mail leaving 'Iraq for this part of the world is not likely to take up a great deal of room.

The delay in reaching a settlement with the Persian Government of the matters in dispute with Great Britain has of course retarded the initiation of regular flights from England to the East. Apart from that there appears to have been far too much talking of plans and not enough action towards carrying them out in regard to the initiation and development of Empire air routes the first step in which must be a regular service between England and India.

Only a few days ago details were made public of the new agreement between the British Government and the Imperial Airways, under which the Company is to run a weekly and eventually, if the traffic justifies it, a bi-weekly service to India. Judging from the terms of the agreement, which makes the increased subsidy earnable by the Company payable from April 1 next, this service is not likely to commence for some months to come.

In the meantime the Royal Dutch Air Lines have gone ahead with their plans and, aided by readily forthcoming subsidies, are now to be congratulated upon initiating what is actually the first air service between Holland and the Dutch East Indies, although, of course, both Lieutenant Koppen, and de Hoops, who preceded him, carried one or two bags of mail with them when they made their flights from Amsterdam to Batavia.

The Dutch company has actually expedited its plans for when the intention of initiating this service was announced earlier in the year it was stated that it would commence early in 1929, a monthly service being contemplated. On representations from the postal administrations, however, it has been decided to run fortnightly services from Holland to the Dutch East Indies and back, so that our Dutch neighbours will have the satisfaction of receiving their home letters something less than a fortnight after their despatch from Holland, or more than a week earlier than the best Malaya can hope for from the mail steamer services at their fastest. Let us not despair, however, for in the course of possibly two more years we too may be enjoying the same benefits of air transport! Progress—where the Britisher is concerned—is slow, but sure.

There is one direction, however, in connection with the preparations for Empire air routes upon which the home Government is to be congratulated, and that is the decision to send the four Supermarine Southampton all-metal flying-boats on an extensive tour to make a close study of flying conditions over a large section of what will in course of time be the path of Empire air services. To-day Singapore welcomes the Royal Air Force Flight on its return to its base at Singapore at the termination of its eleven months' cruise.

Group Captain Cave-Browne-Cave and the officers who have accompanied him on the most extended flight ever undertaken have made a close investigation of flying conditions during their slow progress through the tropics and round the coast of Australia. There are a host of problems connected with aviation in the tropics experience in regard to which can only be obtained by direct contact with them.

Periodical reports from Captain Cave-Browne-Cave have been published in the home papers relating to the various stages of the flight since the machines left Plymouth last October. The last one covered the flight from India to Singapore; the next will have a special interest to Singapore, for it will deal with local conditions as experienced during the three months that the flying-boats were at Seletar. When the full report of the flight comes to be compiled it will undoubtedly be found to contain a considerable quantity of valuable data which will be of the greatest possible use in the development of the Empire's air services of the future.

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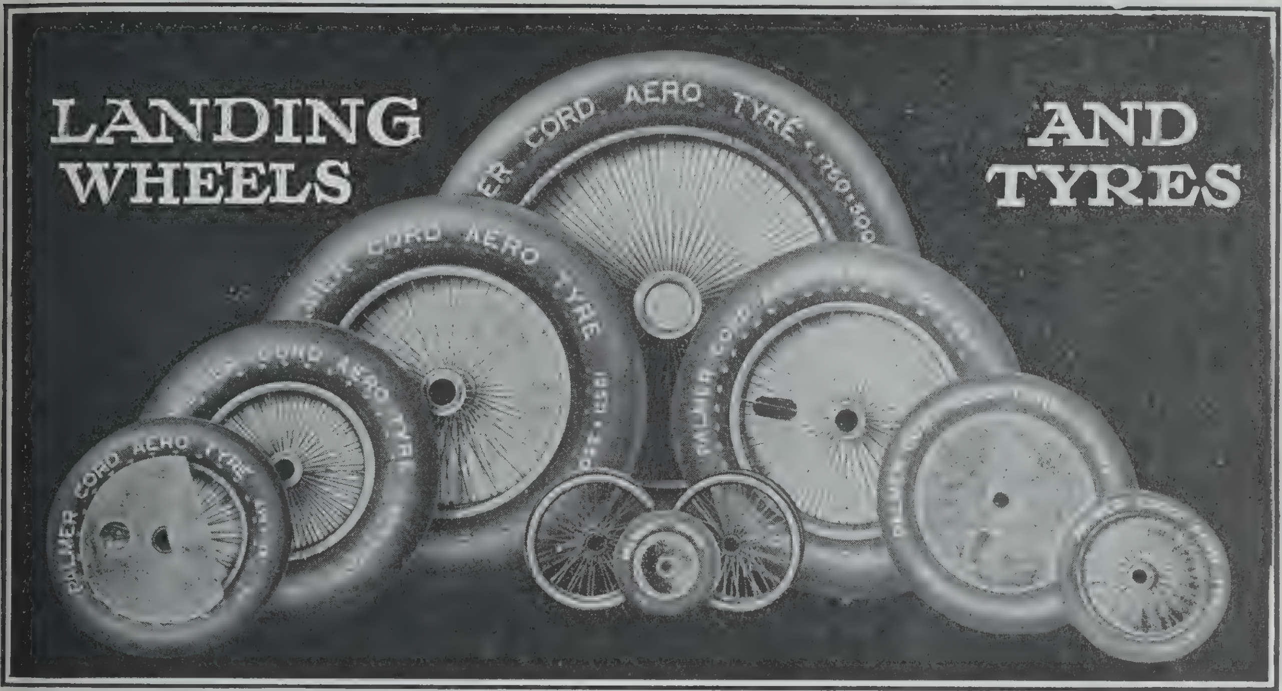
The well-known firm of Wainwright's Ltd., of 300, Euston Road, London, N.W.1, are now able to supply all forms of flying clothing at very reasonable rates. The accompanying illustration shows some of their products. On the left is seen a double chrome leather coat (in black or tan) at six guineas. On the right is an R.A.F. pattern Sidcot suit at 57s. 6d. In the centre is a flying helmet, a set of goggles, a pair of earphones and a pair of leather gloves, all at 12s. 6d.

Besides the above, the firm can supply practically all the aviator needs, including fur-lined boots, tan or black leather breeches, and field boots of all descriptions.

PALMER



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		Length	Bore	
		m/m	m/m	m/m
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300×60	16	111.12	25.4	Central
450×60	30	89.	31.75	Central
"	172	130.	38.09	Central
575×60	21	160.	28.	Central
"	180	150.	38.09	104/46
"	186	120.	34.92	Central
"	90	150.	38.09	Central
650×65	78	178.	44.45	132/46
"	79	178.	44.45	Central
"	100	178.	38.09	132/46
"	101	178.	31.75	132/46
600×75	21	160.	28.	Central
"	180	150.	38.09	104/46
"	186	120.	34.92	Central
"	190	150.	38.09	Central
700×75	78	178.	44.45	132/46
"	79	178.	44.45	Central
"	100	178.	38.09	132/46
"	101	178.	31.75	132/46
00×100	77	178.	44.45	132/46
"	92	185.	55.	135/50
"	95	185.	55.	Central
"	99	178.	38.89	132/46
700×100	112	150.	38.09	Central
"	176	178.	44.45	Central
"	179	178.	55.	132/46
650×125	119	178.	55.	132/46
"	147	178.	55.	Central
"	188	120.	34.92	Central
750×125	77	178.	44.45	132/46
"	92	185.	55.	135/50
"	95	185.	55.	Central
"	99	178.	38.89	132/46
"	112	150.	38.09	Central
"	176	178.	44.45	Central
"	179	178.	55.	132/46
800×150	161*	185.	55.	135/50
"	162*	185.	55.	Central
"	163*	185.	66.67	135/50
"	169†	185.	55.	135/50
"	177	185.	55.	135/50
"	183	185.	55.	Central
"	211*	185.	60.32	135/50
1000×150	167	185.	55.	125/60
"	174	250.	80.	Central
"	182	185.	55.	Central
"	187	220.	66.67	Central
"	201	185.	60.32	125/60
1000×150	210	185.	60.32	Central
1000×180	148	220.	80.	Central
"	149	185.	55.	Central
"	155	220.	66.67	Central
"	166	185.	55.	125/60
900×200	107	185.	55.	Central
"	108	185.	55.	125/60
"	128	220.	66.67	Central
"	137	250.	80.	Central
"	157	185.	80.	Central
"	202	185.	60.32	Central
1100×220	134	220.	66.67	Central
"	136	250.	80.	Central
975×225	192	185.	60.32	Central
"	194	185.	55.	125/60
1250×250	133	250.	80.	Central
"	154	304.8	101.6	Central
1500×300	115	304.8	101.6	Central
"	126	304.8	152.4	Central
1750×300	139	400.	152.4	Central
"	191	350.	150.3	Central
1750×350	193	400.	125.	Central

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(365)

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]

Aerodrome: Stag Lane Aerodrome, Edgware, Middlesex.

Report for week ending Oct. 21.

Instructors: V. H. Baker and F. R. Matthews. *Ground Engineer*: C. Humphreys.

Machines in commission: 4 (NY, MP, XS, and G-AABL).

Flying Time: 38 hr. 15 min.; *Instruction*: 15 (15 hr. 55 min.); *"A" Pilots*: 19 (19 hr. 4 min.); *Passengers*: 8 (2 hr. 35 min.).

Notes.—All members will be deeply sorry at the accident to Miss O'Brien and the Hon. Miss M. K. Leith, both members of the Club, on Saturday last. Miss O'Brien was one of the earliest of our lady members to take up flying as a profession. She bought a Moth and eventually qualified for a "B" Licence. She was presumably giving flying instruction on her own machine at the time of the accident. All members will join in wishing both these ladies a speedy recovery. The operation which had to be performed on Miss O'Brien will probably prevent her from taking an active part in the profession to which she was so much attached. Her enthusiasm for flying was unbounded and she will, we are sure, receive the sympathy of all.

The Lancashire Aero Club.

[Sec.: F. W. Atherton, Woodford Aerodrome, Cheshire.]

Report for week ending Oct. 20.

Chief Instructor: D. E. Hall. *Voluntary Asst. Instructors*: Cantrill and Scholes. *Ground Engineers*: Bartram and Chapman.

Machines in commission: 4 (XD, MQ, NF, QL).

Flying Time: 25 hr. 15 min.; *Instruction*: 14 (7 hr.); *Soloists (under instruction)*: 2 (1 hr. 30 min.); *"A" Pilots*: 11 (5 hr. 50 min.); *Passengers*: 23 (8 hr. 35 min.); *Tests*: 2 hr. 20 min.

Notes.—Mr. T. E. V. Roberts began instruction with the Club this week. Mr. J. C. Weale obtained his "A" Licence and Mr. Faulkner carried out a successful height test.

A serious accident occurred to the Avro-Gosport NF on Sunday afternoon. The pilot, Mr. R. E. H. Caldecott, and his passenger, Mr. Ramsden, were both injured, the latter seriously. This is the first occasion, since the Club started flying nearly five years ago, on which either the pilot or passenger in a Club machine has sustained injuries.

MR. LEEMING'S RESIGNATION.

Many of those who appreciate the hard work and energy which he put into the organisation of the Lancashire Aero Club will regret to hear that Mr. John Leeming has retired from the Chairmanship of the Flying Sub-Committe. This, *ipso facto*, means that he will cease to be a member of the Council of the Associated Club and of the Royal Aero Club Racing Committee.

In retiring Mr. Leeming has the satisfaction of knowing that the Club for which he worked so hard at the start is in a sound financial position, has a rapidly increasing membership, has five first-class aeroplanes in service, has a much improved Club-house and new accommodation for the staff and offices.

His book, *Pilot's "A" Licence*, which he produced at his own expense, simplified for would-be pilots the understanding of Air Ministry requirements for "A" licences, has certainly been a public benefit, and has sold in large numbers.

One is entirely ignorant as to the reason for Mr. Leeming's resignation, but his enemies must admit and his friends can claim that he has done very good work for aviation and Club flying.—C. G. G.

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Oct. 20.

Instructor: G. R. Beck. *Chief Ground Engineer*: R. Morris. *Asst. Ground Engineer*: T. Houghton.

Machines in commission: 2 (TB and SV).

Flying Time: 16 hr. 10 min.; *Instruction*: 7 (5 hr. 30 min.); *Soloists*: 3 (1 hr. 5 min.); *"A" Pilots*: 8 (8 hr. 30 min.); *Passengers*: 6 (1 hr.) *Tests*: 2 (10 min.).

Notes.—Mr. P. Dujardin has passed for his "A" Licence.

Our Ground Engineer, Mr. R. Morris, has been granted his Categor "D" Licence.

A successful Whist Drive was held in the Club House on Wednesday Oct. 17. The number present was small, but a pleasant evening wa spent which cleared £7 towards the provision of a dance floor for th Club House. It is hoped to repeat this in the near future. [Som dancers these Yorkshiremen, if the dance floor has to be repeated.—Ed.]

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Aerodrome: Castle Bromwich.

Report for week ending Oct. 20.

Instructors: Flt. Lt. T. Rose, D.F.C., and W. H. Sutcliffe. *Groun Engineer*: W. J. Halland. *Asst. Ground Engineer*: G. Rees.

Flying Time: 20 hr. 33 min.; *Instruction*: 10 (7hr. 50 min.); *"A" Pilots and Soloists*: 20 (7 hr. 35 min.); *Passengers*: 5 (4 hr. 30 min.) *Test*: 38 min.

Notes.—Mr. W. L. Handley, of T.T. fame, made a successful firs solo.

Flt. Lt. Rose and Mr. O. R. King went to Bristol on XT on Saturday to find out the meaning of the mystic words *"At Home."* The did so.

High winds have annoyed us most of the week.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, The Hampshire Aeroplane Club, Hamble Southampton.]

Aerodrome: Southampton Aerodrome, Hamble.

Report for week ending Oct. 20.

Instructors: Flt. Lt. F. A. Swoffer, M.B.E., and W. H. Dudley. *Groun Engineers*: E. Lenny and J. Elliott. *Machines in Commission*: 2 (O and OH).

Flying Time: 22 hr. 25 min.; *Instruction*: 19 (12 hr.); *Soloists*: (3 hr. 55 min); *"A" Pilots*: 8 (5 hr. 35 min.); *Passengers*: 2 (4 min.); *Tests*: 6 (55 min.).

Notes.—Messrs. R. M. Wilson, A. L. Angus and M. M. Roy hav joined us this week as pilot members.

Miss Home and Mr. Coode have successfully passed their figures-of eight tests.

Bad weather this week has considerably curtailed our flying time On Thursday it was impossible for the machines to leave the hanga owing to a violent gale.

We notice from last week's notes that our good friends of the Suffol Club are under the impression that we have only one machine. Occasionally owing to mishaps, from which no club is free, our usua number of machines (three) has been reduced to one. This week w have had two Moths in commission and we expect to have the Avia back very soon. Our membership is at present 410 and if this is 40 more than that of the Suffolk Club we extend our sympathy. We trus that their one member is now approaching "A" Licence stage. I spite of our large membership if this gentleman should ever desir to make a change we can promise to give him all the flying he ca want.

The Norfolk and Norwich Aero Club.

[Sec.: G. McEwen, The Aerodrome, Sprowston, Norwich.]

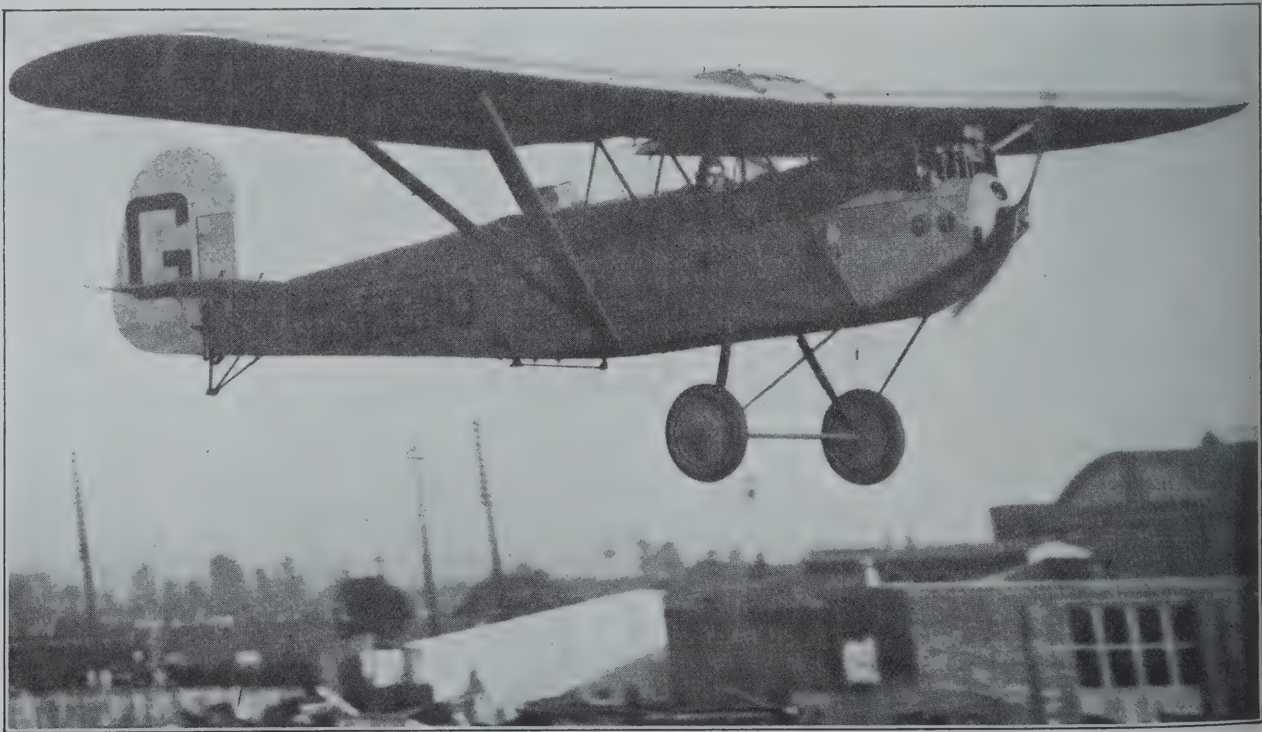
Report for week ending Oct. 21.

Instructor: B. Young. *Ground Engineer*: A. Kirkby.

Machine in commission: 1 (ZW).

Flying Time: 1 hr. 20 min.; *"A" Pilots*: 2 (1 hr. 20 min.).

Notes.—Extremely bad weather has prevailed here again this week



AT THE BRISTOL "AT HOME."—Mr. Penrose landing the Westland Widgeon (Cirrus III).—(*"Aeroplane" photograph.*)

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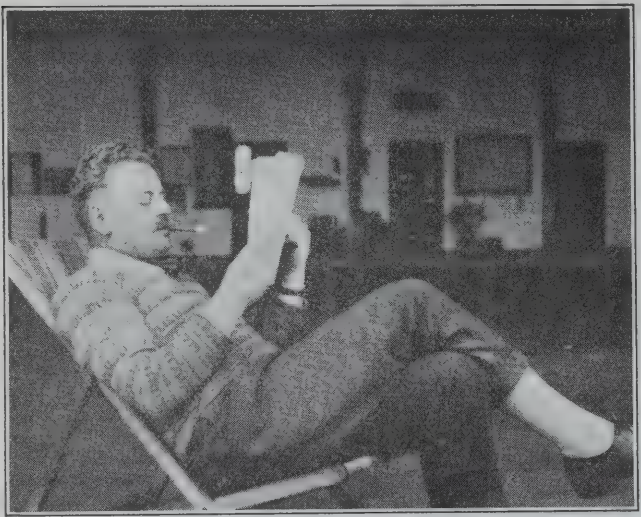


GOOD WORK BRINGS LEISURE.—Mr. "Bob" Halland of the Midland Club enjoys rest (and "The Aeroplane") after assuring the airworthiness of the Club's machines.

The only two possible days for flying were Saturday and Sunday and then one had to dodge between the showers and put up with being bumped very severely all over the sky. Our pilots don't care for too much bumping about and we really do not encourage it very much lest a bump should extend as far as the deck. Norwich is given to nasty winds at times.

To vary the monotony however we were honoured by a visit from "The Boxing Marquis" (*vide* Press), The Marquess of Clydesdale, who arrived in his Moth on one of the dirtiest days and made a splendid landing almost on the tarmac. He can certainly handle a machine as well as the gloves and we give him full marks. Having lunched at the Club with some friends he pushed off again in spite of the weather.

Arrangements for the Ball are now fairly complete and it only remains to dispose of the few surplus tickets. From the number of applications we are getting they certainly will not require any hawking.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome Hadleigh, Suffolk.]

Aerodrome: 2 miles E. from Hadleigh, Suffolk.

Report for week ending Oct. 20.

Instructor: G. E. Lowdell, A.F.M. *Ground Engineers*: "C," E. Mayhew; "A," G. Keeley.

Machines in commission: 2 (RE and SZ; UH in reserve).

Flying Time: 7 hr. 30 min.; *Instruction*: 7 (3 hr. 30 min.); *"A" and "B" Pilots*: 4 (1 hr. 20 min.); *Passengers*: 19 (2 hr. 15 min.); *Tests*: 8 (40 min.).

Notes.—High winds and rain have rendered conditions bad for pupils.

On Sunday a local motor-cycle club made the aerodrome the objective of a social run. A number of their members had flights.

On Monday an Imperial Airways' D.H.50 fought its way through the mist to Hadleigh carrying Press representatives to the scene of the explosion at Bramble Island. A Press photographer chartered one of the Bluebirds and flew over the works with Mr. Lowdell to take photographs.

The Bristol and Wessex Aeroplane Club.

[Sec.: G. S. Cooper, D.S.O., Filton Aerodrome, Bristol.]

Report for week ending Oct. 20.

Instructor: E. W. B. Bartlett. *Ground Engineer*: A. W. Webb.

Machines in commission: 2 (YH and TV).

Flying Time: 6 hr. 30 min.; *Instruction*: 4 (1 hr. 35 min.); *Soloists*: 2 (20 min.); *"Pilots"*: 3 (1 hr. 20 min.); *Passengers*: 8 (2 hr. 25 min.); *Tests*: 6 (35 min.).

Notes.—Bad weather has made flying quite impossible most of the week. After five rather miserable days we had great fortune in enjoying an almost perfect day for our *"At Home"* on Saturday.

Most of the visitors we expected arrived. First of all we were very glad indeed to welcome Sir Sefton Brancker, who flew down in G-EDCA. Mr. Broad came in G-EBYK and gave us two very finished exhibitions of aerobatics which delighted everyone, and were loudly applauded.

We were especially pleased to welcome representatives from the Midland and Nottingham Clubs, and tender our thanks to Flt. Lt. Rose and Mr. Ball for assisting to make the afternoon the great success it was. Mr. Tapper brought the A.A. Moth G-EBUR, Mr. Penrose the Westland Widgeon G-EBRO, and Mr. Parkhouse of Teignmouth his Avian G-EBXO, and we hope they enjoyed the day as much as we appreciated seeing them.

Mr. Bartlett gave us two typical flights, such as we have learnt to enjoy. These were immensely appreciated by a large gathering of members and their friends.

The competition was won by Flt. Lt. Rose with Miss Parker as passenger. A silver cigarette case and silver clock were the prizes, and these were presented by Mrs. Ashley Hall.

We would like to thank the Automobile Association for their control of all arrangements during the day, and their organisation before and during the afternoon, all of which were of invaluable assistance to us and visiting pilots. The afternoon was intended more as a friendly social gathering of an informal nature, rather than a flying meeting, and as such we think the day was a great success.

There was a dinner at the Grand Hotel Bristol in the evening which was attended by 35 visitors and members. Sir Sefton Brancker in an amusing speech included the outlines of the forthcoming Light Aeroplane Club.

[As one of those who had the good fortune to find the Bristol Club "at home," one bears witness to its being a very pleasant afternoon. The flying was excellent, the weather was as perfect as could be expected at this time of year, and the organisation—both by the Club and by the Automobile Association—was excellent.

On one matter only one is compelled to criticise the management, that is the conditions of the competition in which women passengers had to jump out after landing and run back to the finishing line. Two young women, greatly daring, were each out on the wing of her machine as soon as it touched and were off onto the ground before it stopped. Each fell over. Either, or both, might well have been hit by the tail and killed by concussion, or have been mangled by the tail-skid. This game is not worth while.

Probably, now that the danger has been seen, similar competitions will be barred. Apart from that the "at home" was a great success. One hopes there will be similar afternoon shows during the Winter.—C. G. G.]

The Liverpool and District Aero Club.

[Sec.: J. Ellis, Hooton Aerodrome, Hooton, Wirral, Cheshire.]

Aerodrome: Near Eastham, Birkenhead.

Report for week ending Oct. 20.

Instructor: Flt. Lt. J. B. Allen. *Ground Engineer*: Howard Pixton.

Machines in commission: 2 (XX and WK).

Flying Time: 12 hr. 25 min.; *Instruction*: 10 hr. 35 min.; *Soloists (under instruction)*: 25 min.; *Passengers*: 10 min., *Tests*: 40 min

Notes.—Aerofilms Ltd. used one of our machines for 35 minutes on aerial photography (pilot, Flt. Lt. Allen).

Bad weather has seriously curtailed our flying this week.

On Sunday last XX, piloted by Flt. Lt. Allen with Mr. Barker under instruction, tried conclusions with a sheep when landing. The undercarriage promptly folded back and XX took a rest until Thursday. As for the cause, "A Sheep from Hooton—bang! zip!!!—Mouton!"

The Nottingham Aero Club.

[Hon. Sec.: Cecil R. Sands, A.C.A., Imperial Buildings, Victoria Street, Nottingham.]

Report for week ending Oct. 5.

Instructor: B. Martin. *Ground Engineer*: A. J. Harris.

Machines in commission: 1.

Flying Time: 16 hr. 5 min.; *Instruction*: 2 hr. 15 min.; *"A" Pilots*: 9 hr. 40 min.; *Soloists (under instruction)*: 1 hr. 50 min.; *Passengers*: 50 min.; *Tests*: 1 hr. 30 min.

Notes.—Flying was only possible on four days this week owing to weather and with only one machine in action our flying time is very low.

Report for week ending Oct. 12.

Flying Time: 16 hr.; *Instruction*: 5 hr. 15 min.; *"A" Pilots*: 7 hr.; *Soloists (under instruction)*: 1 hr. 25 min.; *Passengers*: 1 hr. 5 min.; *Tests*: 1 hr. 15 min.

Notes.—As the weather this week has been the worst we have experienced since last Winter our flying time is still low. Our dear friend Horace made a perfect landing about 30 ft. or so up on Sunday last resulting in the attitude of a dying duck. As the damage was very slight we have let him off with a caution this time.

Report for week ending Oct. 19.

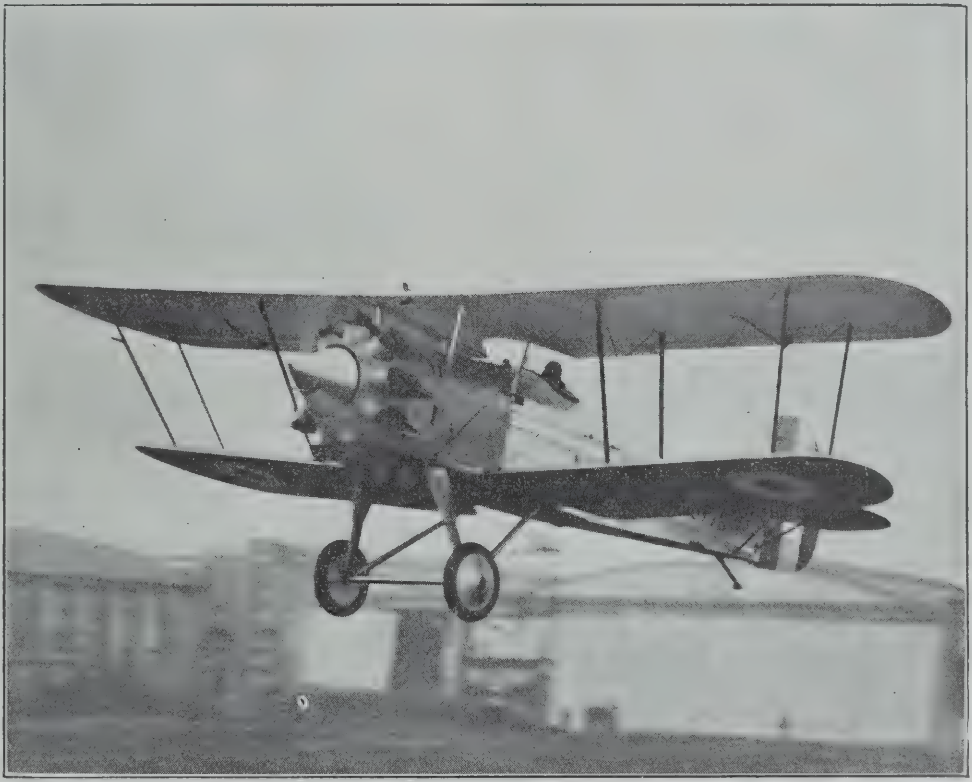
Machines in commission: 2.

Flying Time: 16 hr. 25 min.; *Instruction*: 2 hr.; *"A" Pilots*: 7 hr. 40 min.; *Soloists*: 4 hr. 45 min.; *Tests*: 1 hr. 35 min.; *Passengers*: 25 min.

Notes.—The outstanding feature of the week has been the finest collection of dud weather we have noticed for some time, again seriously curtailing our flying time. Another of our members lost himself the other day—One, Derby Wynn—he also, we are pleased

THE BRISTOL "AT HOME."—Visitors and Machines at Filton, with the Club House in the background.
—("Aeroplane" photograph.)

HAWKER AIRCRAFT



"Aeroplane" Photograph.

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to state made a good landing in a most awkward field, with a steep slope, surrounded by trees and high-tension cables.

Our Instructor—Mr. Martin—was flown over by Mr. Harold Ashworth, our private owner, in his Avian, and both managed to get out by taking off cross-wind and proceeded to Hucknall. Our Asiatic member, Mr. R. N. Chawla, has qualified for his "A" Ticket and is shortly leaving for India. He was very jubilant and rather inclined to break all the Ten Commandments or their equivalent in his own particular Creed. "The Spirit was willing but the flesh was weak" and the "DO." ended early.

The Berks, Bucks and Oxon Aeroplane Club.

[Hon. Sec.: Miss L. Cribb, 12, Highmoor Road, Caversham, Reading.]

Aerodrome: Swallowfield, Reading.

A new club has been formed with headquarters at Reading for the adjacent counties of Berkshire, Buckinghamshire and Oxfordshire. The Club's first public activity will be seen on Saturday next, Oct. 27 when a meeting will be held on an aerodrome at Swallowfield, near Reading. Flying will begin at 11.00 hours and continue all day. Visitors by car to the Meeting will find the usual help from the Automobile Association in finding their way to the aerodrome.

So far there are thirty-four entries from other Clubs, firms and private owners. Although the Air Force cannot help, a very varied programme has been arranged and, weather permitting, a first-class show will be given. The Club has already some two hundred members and is finding most gratifying backing.

Readers of The Aeroplane who are in reach of Reading will be sure of seeing a good display on Saturday for among those who have already signified their intention of being present are Sq. Ldr. England, Mr. Broad and Mr. Stack and a number of other prominent pilots.

The Cinque Ports Flying Club.

[Hon. Sec.: R. Dallas Brett, 114, High Street, Hythe, Kent.]

Aerodrome: Lympne.

Report for week ending Oct. 20.

Instructor: Mr. H. G. Travers, D.S.C. *Ground Engineer*: Mr. R. H. Wynne.

Machine in commision: 1 (NN).

Flying Time: 1 hr. 15 min.; *Instruction*: 3 (45 min.); *Tests*: 3 (30 min.).

Notes.—Very bad weather with rain, low visibility, and high winds interfered with flying the whole week, and accounts for the small hourage.

We were glad to see Mr. Martin back again after his car-crash at Brooklands.

Mr. Law, a new member from London, has bought an X-type Moth, G-EBYS, which is now in the Club hangar, and he is shortly going to learn to fly with the Club.

Attention is drawn to the fact that this Club is giving special rates for tuition during the Winter. As there is no waiting list and Winter conditions here are often more favourable for tuition than Summer weather, this is a good opportunity for people wishing to learn to fly quickly and cheaply.

THE FLYING SCHOOLS.

The Henderson Flying School.

[Sec.: H. S. Hamilton, Brooklands Aerodrome, Byfleet.]

Report for week ending Oct. 18.

Instructors: Lieut.-Col. G. L. P. Henderson and Mr. H. D. Davis. *Ground Engineers*: A. A. Anderson and W. A. Watts.

Machines in commission: 2 (VE and G-AACA).

Flying Time: 14 hr. 50 min.; *Instruction*: 24 (7 hr. 50 min.); *Soloists*: 8 (5 hr. 55 min.); *"A" Pilots*: 4 (3 hr. 15 min.); *Passengers*: 26 (1 hr. 5 min.); *Tests*: 2 (30 min.).

Notes.—New pupils: Messrs. Bardwell, Ford, Eggar, Richerson, Koratkar.

Mr. S. S. Daniel, who is undergoing his tests for his "B" Licence, did his height test very satisfactorily, and Mr. Eugene Hsiao has now nearly completed all his solo flying before doing his "B" Licence tests, which he will undertake at an early date.

The De Havilland Flying School.

Report for week ending Oct. 14.

Flying Time: 61 hr. 25 min.; *Instruction*: *Dual* 19 hr. 35 min., *Solo* 32 hr. 45 min.; *Other Flying*: 9 hr. 5 min.

Notes.—Two pupils passed their night-flying tests for "B" Licence, one being Mr. Roushdy of the Civil Aviation Department of Egypt.

On Monday we had a surprise visit from the Secretary of State for Air, Sir Samuel Hoare. He was most interested in the Stag Lane private owners' garage, and the Moth production departments, both of which, he said, spoke volumes for the future of private flying.

On Wednesday, Commandant Fitzmaurice of the Irish Free State Air Force dropped into the aerodrome on the first Irish civil aeroplane. He watched a Gipsy-Moth in action and was greatly impressed with its performance.

The Daily Mail have now taken delivery of their new D.H.61 and one looks forward to its safe accomplishment of many thrilling flights.

Among new Gipsy-Moth owners we are pleased to welcome Capt. Malcolm Campbell, the well-known racing motorist. We understand that Capt. Malcolm Campbell is to use his Moth for observation work in connection with finding a "speedway" for his proposed attack on the motor speed record.

Report for week ending Oct. 21.

Flying Time: 53 hr. 10 min.; *Instruction*: Dual 23 hr. 20 min., Solo 23 hr. 15 min.; *Other Flying*: 6 hr. 35 min.

Ten Gipsy-Moths were tested and delivered during the week.

A LANCASHIRE ACCIDENT.

Mr. R. E. H. Caldecott, a well-known member of the Lancashire Aero Club, accompanied by Mr. W. J. Ramsden, met with a serious accident on Bramhall Park golf course on the afternoon of Oct. 21. About twenty minutes after they had left Woodford Aerodrome their machine was seen coming down from a considerable height in a spin. The machine apparently started to recover from the spin, but was too close to the ground to be saved.

The occupants of the machine were taken to hospital, where Mr. Caldecott was found to have severe injuries to the head, and Mr. Ramsden to have a broken leg and head injuries.

ADVICE TO WOULD-BE PILOTS.

By A Club Instructor.

(1) Don't call aeroplanes 'kites,' 'cos they ain't.

(2) Alcohol is *not* a necessary part of a pupil's flying training—this is sad but true. Physical fitness *is*.

(3) When you start flying instruction, from the very first time you handle the controls, try and imagine you are dancing with a very fragile little fairy and not trying the best of three falls with Sophie Tucker.

(4) When in doubt on any point, ask your Instructor and not a recent 'A' pilot. The former will probably save you a lot of trouble and the latter may cause your parents a deal of grief.

(5) In the air as well as on the ground, the soundest motto is—'Every turn a good one.' Also, remember that 'A soft hand turneth away wreaths.'

(6) Aeroplanes are very like women to handle—to get the desired results one must be firm but at the same time very gentle.

(7) The opinion of one's lady friends as to one's ability as a pilot is useless, so for Heaven's sake don't ask for it by trying to show 'em how clever you are near the ground. One minute they will be saying 'Isn't he a clever brave darling?', and the next minute we may be taking off our hats as the body goes by.

8. Never take a liberty with an aeroplane near the ground—sooner or later it will turn round and bite you and an aeroplane's bite is very often fatal.

(9) When you see another machine in the air always imagine the pilot in that machine is a bigger fool than you are and keep clear. It may be true one day.

(10) The correct position for the left hand is on the throttle. This regulation is sometimes relaxed when one is lucky enough to be flying a Bluebird from the right hand seat with a pretty fairy as passenger—at least, so they say in Yorkshire

(11) If a lady pilot condemn thee with hard words, enter not into the unequal contest.

A PARACHUTE STORY.

This story comes from a journalist-pilot in the States, to whose memory it was recalled by reading in The Aeroplane the name of an officer with whom he shared the experience:—

'Wing Cdr. Christie, your Air Attaché at Washington, brought him and another officer out to Chanute, and they all three jumped the day they arrived. I also was invited by Major MacChord (who has since made several jumps) to do a jump, but on inquiry as to the number of jumps the major had made he explained that the number was none, because it was always too windy on days when he wanted to jump, and he was always too busy on days when the wind was right, so I explained I didn't feel it would be right for the press to do something the major hadn't.

'However, the sergeant in charge of the parachute school gave the three instruction in the use of the Irvin 'chute, and the day's festivities proceeded. The standard rag (isn't that the correct word?) around our flying fields is to caution a new jumper to bring back the rip-cord ring, explaining that the loss of Government property is a serious offence, in this case punishable by a $5 fine.

'Christie and L—— both, as most people do, dropped their rings, and never remembered when or where. But Lt. S—— was made of sterner stuff, and, to release his hands to operate the shroud-lines, in order to turn himself about to face the direction of drift, he put the four inch iron ring in his mouth for safe keeping.

'Unfortunately, he neglected to flex his knees, landed stiff-legged, bounced rather high, did a flip and came down sitting, whereupon the 'chute proceeded to drag, with the result that he turned another flip, coming down more or less on his head, the rip cord ring knocking out one (or perhaps it was two) teeth!'

AMUNDSEN'S FATE.

Press reports from Paris state that experts attached to the French Ministry of Marine after examining the seaplane float (presumably a wing-tip float) found off Trömso at the beginning of September, have accepted the float as part of the Latham flying-boat on which Capt. Amundsen disappeared, and have expressed the opinion that the damage shown indicates that the machine must have dived into the water head-on, and have been completely wrecked, with instantaneous fatal results to the occupants.

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 11; Monday, 22; Tuesday, 21; Wednesday, 14; Thursday, 17; Friday, 23; Saturday, 20.

Imperial Airways Ltd.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 50, passengers 408, freight 19 tons.

Air Union:
Paris—London and return: Machines 31, passengers 131, freight 14 tons.

K.L.M.:
Amsterdam—Rotterdam—London and return: Machines 12, passengers 64, freight 4½ tons.

Sabena:
Brussels—London and return: Machines 13, passengers 28, freight 2 tons.

Deutsche Lufthansa A.G.:
Amsterdam—London and return: Machines 13, passengers 38, freight 2 tons.

Miscellaneous:
British machines 9, passengers 3.
Foreign machines 0, passengers 0.

Total number of trips by British Machines, 59, carrying 417 passengers. Foreign Machines, 69, carrying 261 passengers.

COMPARATIVE FIGURES.

Week ending Oct. 20:
Machines, 128; Passengers, 678; Crews, 248; Total personnel, 926.
Corresponding week, 1927:
Machines, 95; Passengers, 516; Crews, 179; Total personnel, 695.
Corresponding week, 1926:
Machines, 74; Passengers, 209; Crews, 95; Total personnel, 304.
Corresponding week, 1925:
Machines, 56; Passengers, 191; Crews, 65; Total personnel, 256.
Corresponding week, 1924:
Machines, 73; Passengers, 307; Crews, 90; Total personnel, 397.
Corresponding week, 1923:
Machines, 49; Passengers, 116; Crews, 73; Total personnel, 189.
Corresponding week, 1922:
Machines, 82; Passengers, 355; Crews, 139; Total personnel, 494.
Corresponding week, 1921:
Machines, 57; Passengers, 134; Crews, 77; Total personnel, 211.
Corresponding week, 1920:
Machines, 111; Passengers, 192; Crews, 140; Total personnel, 332.

Croydon Notes.

The Daily Mail's own private aeroplane, a new D.H.61 with a geared Bristol Jupiter engine, made its first appearance at Croydon on Friday, Oct. 19, arriving there from Stag Lane about noon, and departing for Amsterdam a little before 14.00 hours.

This machine, which bears the registration G-AAAN, is painted scarlet, is fitted with a darkroom wherein photographs may be developed, carries a motor-cycle for rapid transport from landing grounds to the scene of whatever event it may be pursuing, and is fitted with telephone communication between passengers and pilot, as well as with wireless.

It is being flown for Associated Newspapers Ltd. by Mr. Wilson.

On this particular Friday there was great movement of privately owned aircraft across the Channel.

Mr. Neville Stack left Croydon at 10.53 hrs. on Avro Avian G-AAAT (Cirrus Mk.III engine) for Berlin, which he reached without a stop at 15.55 hrs. Whether this latter is G.M.T. or Central European time, one hour later, and whether the time taken was just over four or just over five hours cannot at the moment be discovered. But in any case the flight, aided by a strong following wind, is among the fastest to Berlin yet made.

At the time of Mr. Stack's departure Lt. R. R. Bentley (South African Air Force) was busy stowing his luggage on his machine, while Mrs. Bentley was equally busy attending to triptyques, passports, and like formalities, against their departure for South Africa.

Mr. and Mrs. Bentley left Croydon at 13.00 hours precisely and reached Cologne at 16.15 hours.

On the same day three other Moths, flown by Capt. de Havilland, Mr. Alan S. Butler, and Mr. Jackaman, cleared from Lympne to fly to Berlin.

Apart from this one day of private activity, the week has been uneventful. Passenger traffic, particularly on the Paris route, is keeping up remarkably well, and machines, though not quite so packed as they were in the Summer, are still fairly fully loaded.

THE ROUTE TO INDIA.

The Government of Persia, according to current report, have now agreed to permit the passage down the Persian Gulf of aircraft to Imperial Airways for a period of three years.

The present Middle-East service of this company will therefore be extended from Basra to Karachi in January of 1929 without waiting for the inauguration of the through route from London to India which is planned for April of that year.

EAST MEDITERRANEAN AIR ROUTE.

Reports state that the Egyptian Government has given permission to an Italian company for the landing of aeroplanes flying from Genoa to Egypt by way of Bengazi. The first flights will be experimental, but if successful the intention is to operate a regular service on this route.

A meeting of the Greek Cabinet on Oct. 20 has agreed in principle to the request of the British Government that civil aerodromes may be established at Corfu, Argostoli, Navarino, and Suda Bay for the use of aircraft plying on the route between England and Egypt.

THE AIR ROUTE TO EAST AFRICA.

Cobham-Blackburn Air Lines Ltd., who have at their disposal the results of the experimental flights made in Africa firstly under the control of Mr. Gladstone, of the North Sea Aerial Transport Co. Ltd., and secondly by Sir Alan Cobham, are, as is well known, firmly convinced of the value and ultimate commercial success of an air line running from Egypt south by way of the Nile and the Great Lakes to British East Africa and eventually to South Africa.

This company has drawn up a scheme for the operation of such a service, and it has secured promises of financial support from the Colonial Governments directly concerned provided that they can also obtain some measure of similar help from the Imperial Government.

The latter however is apparently bound by the terms of its agreement with Imperial Airways to allow this company to tender for the operation of any service to be subsidised by the Home Government. Consequently no decision can be made until Imperial Airways have themselves drawn up a scheme and submitted it.

In the meantime the French are proposing the inauguration of two air-lines, one from Dakar to Timbuctu, Nigeria and the Belgian Congo to the Zambesi and across to Madagascar, and one across the Sahara via Lake Chad to the Congo, which, if they come into being before the British scheme, will in some part give to British territories the air transport facilities which they feel they need.

Nevertheless, if the British route by the Nile does ever come into being, it should easily defeat a route which flies over the most barren wastes of the Sahara, and the dense forests of the Congo. At any rate most of the British line would be over fairly civilised country.

FLOATING DOCKS FOR IMPERIAL AIRWAYS.

On Oct. 8 a test was made in Southampton Water to determine the value of the seaplane floating dock developed by the R.A.F. for use under civil conditions.

The dock, which is normally stationed at Portland for use with the Fleet Air Arm, and had been towed to Southampton for the purpose, was used to dock one of the Short Calcutta flying-boats belonging to Imperial Airways.

On the first trial the Calcutta was docked and high and dry within one hour, which is certainly not longer than would normally be required to bring the machine ashore at a reasonably equipped seaplane station.

When docked the machine is accessible for all necessary inspection or normal repairs, and the dock has facilities for lifting and changing engines, wings or the like as well as workshop facilities and accommodation for the necessary personnel.

It is quite possible that the use of floating docks of this type on the flying-boat sections of the route to India will prove more economical than the use of shore bases, and in addition provide a flexibility of route lacking in any system of fixed shore bases.

THE PROPOSED MANCHESTER AERODROME.

Air Vice-Marshal Sir Sefton Brancker, Director of Civil Aviation, on Oct. 19 flew from London to Woodford Aerodrome and inspected the site at Barton Moss, which is to be recommended to the Manchester City Council as suitable for a projected Municipal Aerodrome.

The Director of Civil Aviation is reported to have expressed his approval of this site, and of the scheme for a Manchester Aerodrome. He said that in his opinion before long every great city must have its own aerodrome, not only for the use of regular air lines but also to cater for taxi-services and private owners. He hoped to see Manchester in direct air communication with Northern Europe—not by London and the Channel, but straight across the North Sea.

Barton Moss is about seven miles from the centre of Manchester. There is an area of 260 acres, level and free from obstruction. It is already the property of the city, so that there will be no difficulty about buying it.

NEW YORK—MONTREAL MAIL ROUTE.

On Oct. 1 the New York—Montreal Air Mail Route was inaugurated when two Fairchild monoplanes (Pratt and Whitney Wasp engines) left Hadley Field, N.J., at 07.00 hrs.

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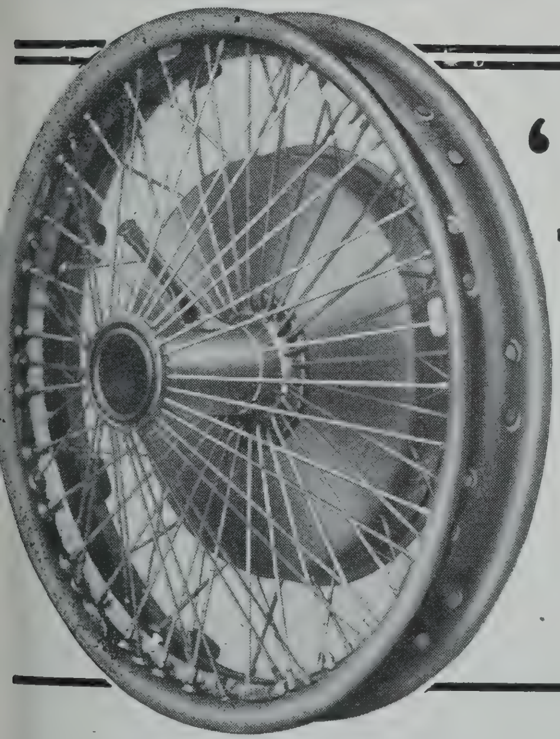

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with passengers, mail and freight. They both arrived at Montreal before midday, after having stopped at Albany.

The first return trip was begun at 14.30 hrs., when a Ford three-engined monoplane left Montreal for Albany with a number of passengers and some freight.

This route is operated by Canadian Colonial Airways Inc., a subsidiary of Colonial Air Transport Inc., of New York. Mail and passengers will be carried regularly from New York to Montreal and from Montreal to Albany.

Machines will leave New York daily at 07.00 hrs., arriving at Albany at 08.30 hrs. and Montreal at 11.15 hrs. Southbound machines will leave Montreal at 14.30 hrs. and arrive at Albany at 16.50 hrs.

Passenger fares are: New York—Montreal $50, New York—Albany $25, and Albany—Montreal $35. No air-mail surcharge is required on letters.

A SEAPLANE BASE FOR MONTREAL.

The Times' correspondent at Ottawa reports that the Montreal Harbour Commission in conjunction with the Department of National Defence have prepared and approved plans for an airport, specially adapted for seaplane use, to supplement the aerodrome at St. Hubert.

The new base is to be in the Eastern section of the city on the North shore of the St. Lawrence, close to the Canadian Vickers aircraft factory. An area of sheltered water, 4,000 ft. x 2,000 ft., protected by two breakwaters, will be provided, with floating platforms for embarkation and landing, Customs offices, and all necessary lighting and other facilities.

CANADIAN NOTES.

A British pilot who has had considerable experience of flying in Canada writes enthusiastically about the D.H.61 which arrived in Ontario in July. He says that it has acquitted itself excellently and is really a remarkable machine. On absolutely calm, glassy water it gets off in 16 seconds with 2,040 lbs. of pay load. Eight on board, including the pilot, seem to make no difference to the get-off.

Lord Thomson was up in the Sault St. Marie district early in September with one of the Canadian Ministers and had a trip in the D.H.61. The said Minister himself made a tour in it from Southern Ontario up to Hudson Bay and then round to the Sault, covering about half the Province in fourteen hours' flying time. As a result he is more than ever impressed with air transport.

The same writer says that the Moths in Ontario are doing well, and that the Ontario Provincial Air Service hope to have some Gipsy-Moths early next year.

The general activity of aviation in Canada continues. About the end of September Western Canada Airways started the Winnipeg-Calgary-Edmonton service, at first with a D.H.61 on wheels, which later is to be augmented by a three-engined Fokker. Western Canada Airways have also bought a Junkers with a Bristol Jupiter engine, which is to be delivered from New York. The same firm are also using Avians on wheels and floats with considerable success.

THE FLIGHT TO THE DUTCH INDIES.

The fourth of the Fokker F.VIII-3m monoplanes on the way to Batavia has suffered a series of mishaps since leaving Calcutta. Near Akyab (Burma) a petrol-tank was found to be leaking and a landing for repairs was made at that place. Rain reduced the landing ground to a morass and three days elapsed before the machine could take off.

The machine thereafter reached Rangoon on Oct. 15, but on attempting to take-off on the morning of Oct. 16 ran into soft ground, tore off the port wheel and damaged the wing and the port engine and airscrew.

Some very considerable delay is inevitable before spares can be delivered at Rangoon.

[The constant mishaps to big aeroplanes caused by soft ground suggest that the study of caterpillar, or "chenille," undercarriages is worth while. For big machines they might not weigh more than wheels or present more head-resistance.—C. G. G.]

AVIATION IN SWEDEN.

A propaganda flight round Sweden, a daily winter route linking Sweden with the Continent and a plan to construct air ports in practically every Swedish city are the latest proofs of the great Swedish interest in the development of Commercial Aviation.

Capt. Ahrenberg, the "star" pilot of the Aerotransport Company, has just returned to Stockholm with his machine, a Junkers F13, after a tour of five months all round Sweden. During this he visited practically every city in the country, made 2,338 ascents, carried over 10,000 passengers, and brought his company a profit of 120,000 kroner. During his flight, Ahrenberg landed in all kinds of places and flew in all kinds of weather without mishap.

The Swedish Aviation Society has addressed a letter to the municipal authorities of all Swedish cities, pointing out that aviation is now so safe and reliable that it must be regarded as a regular means of transport and that every city should therefore establish its own municipal aerodrome. The Society is elaborating standard plans for such aerodromes to be constructed at low cost, and these plans will be submitted to the various communities.

The Aerotransport Company reports that it will this year operate the first direct daily air service to the Continent. The Dutch K.L.M. Aviation Company will maintain daily traffic betwen Malmoe and Amsterdam by means of two comfortable and well-heated twin-engined Fokker machines. This line will enable travellers to Paris and London to save about 18 hours in transit between Sweden and the French and English capitals.

AN AMERICAN ACCIDENT.

On Oct. 18 a Junkers monoplane of the W.33 type, carrying a party of business men, crashed while on a pleasure trip over Atlantic City, N.Y. Report says that a frightened passenger seized the controls and stalled the machine.

One passenger, Mr. W. O. Chanute, was killed outright, two other passengers are not expected to recover, and the four remaining passengers and the pilot were all seriously injured.

Mr. Chanute was the grandson of Mr. Octave Chanute, the famous pioneer of gliding, whose experimental work and advice played a considerable part in leading the Wright Brothers to their own successful efforts.

AN OPPORTUNITY IN TURKEY.

The Commercial Secretary at Constantinople (Colonel H. Woods, O.B.E.) has forwarded to the Department of Overseas Trade specifications, etc., relative to the proposed construction and equipment of an aerodrome on a site in Anatolia.

Details must be submitted to the Ministry of Defence by Nov. 15, 1928.

British firms interested in the matter can obtain further details upon application to the Department of Overseas Trade, 35, Old Queen Street, London, S.W.1. Reference number A.X.7013 should be quoted.

PERSONAL NOTICES.

Deaths.

CURTIS.—On Oct. 17, suddenly, at 66, Downs Road, Coulsdon, Colonel Ivor Curtis, C.B.E., M.A., A.M.I.Mech.E., Educational Adviser to the Air Ministry, son of the late C. E. Curtis, of Brockenhurst.

DUGUID.—On Oct. 21, after a short illness, Ada Myfanwy, the beloved wife of Major Allan Duguid, A.F.C., late R.A.F., of Whyteleafe, Bourne End, Bucks, and Karachi.

PARK.—On Oct. 19, at Shorncliffe Military Hospital, Sq. Ldr. Walter Henry Park, M.C., D.F.C., R.A.F., aged 38.

Sq. Ldr. W. H. Park, M.C., D.F.C., was born in 1890 at Broughton-in-Furness and was educated at St. John's, Leatherhead, and at Lausanne. He joined the Royal Irish Rifles as 2nd Lieutenant in 1916 and was seconded to the Royal Flying Corps February, 1917. He received his flying training with the R.F.C. in Egypt and was transferred to the Home Establishment and served with No. 49 Squadron, No. 40 Training Squadron and No. 25 Training Squadron. In October, 1917, he was posted to No. 11 Squadron, then attached to the III Brigade in France.

He was promoted to be Flight Commander in February, 1918, and in June, 1918, he was awarded the Military Cross. The *London Gazette* of June 22, 1918, states:—

"He undertook a long-distance reconnaissance under the most adverse conditions, and though several other machines were compelled to abandon the attempt he, by his persistence, completed his task and returned with valuable information. He is a patrol leader of the highest order and his consistent gallantry and valuable services cannot be too highly praised."

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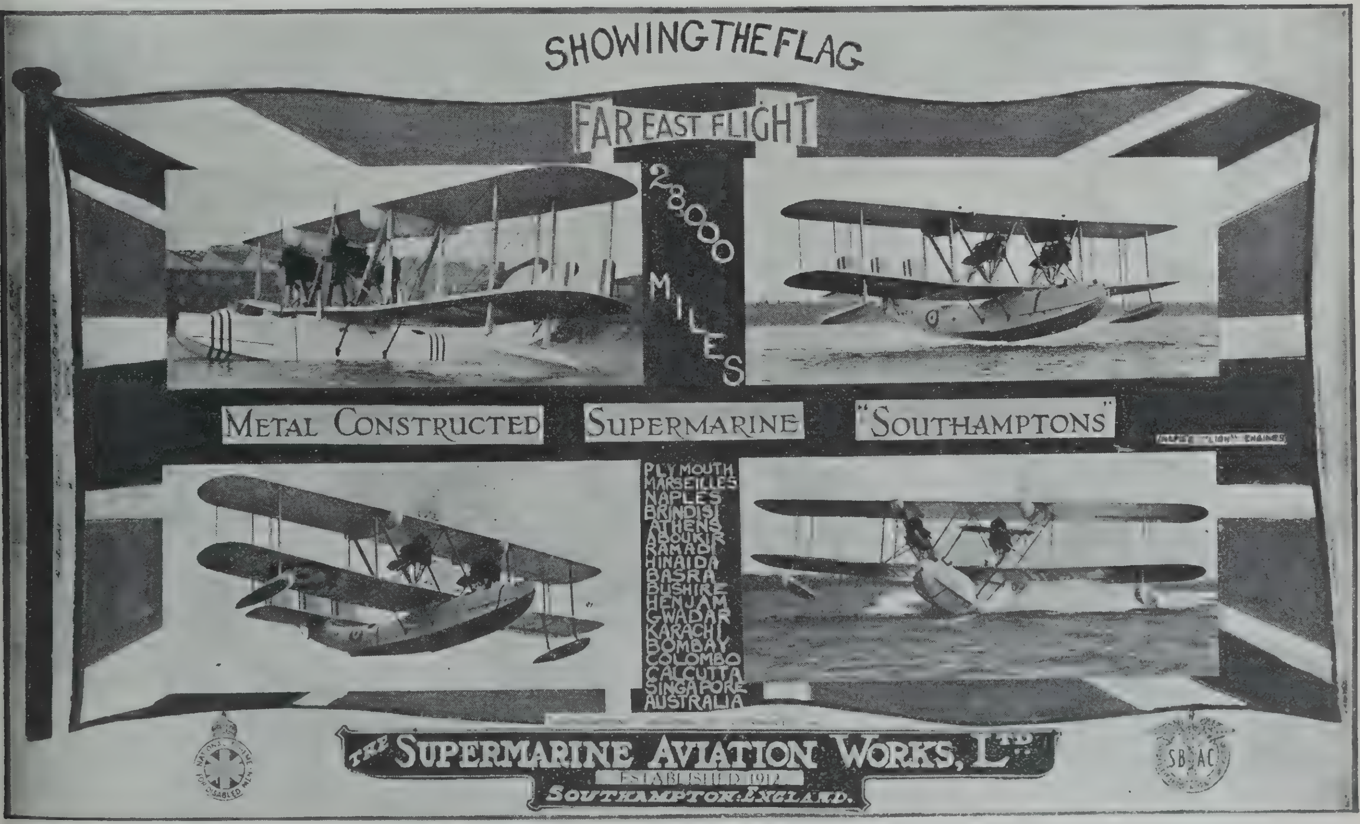

He returned to England again in July, 1918, and was posted to No. 22 Training Depot. In June, 1919, he was posted to H.Q., North Russian Expeditionary Force. For his part in these operations he was awarded the Distinguished Flying Cross. The *London Gazette* of Nov. 18, 1919, states:—

"An exceptionally good pilot who has displayed marked ability and courage during the operations with the 'Syren' force in North Russia. His service flights have been specially praised on six occasions by the Commander of the Force during a period of three months and his determination in pressing home the attacks on the enemy contributed in a large measure to the success which attended the work of the Air Force."

He was also awarded the Order of St. Anne (Russia) 2nd Class with Swords.

In August, 1919, he was appointed to a permanent commission in the R.A.F. with the rank of Flying Officer. In November, 1919, he was posted to No. 1 Wireless School. In April, 1920, he was posted to No. 70 Squadron in Egypt and from then to the Aircraft Depot, Egypt, in June, 1920.

He was promoted Flight Lieutenant in January, 1921, and was posted to No. 8 Squadron, 'Iraq, in the same month. In February, 1924, he was restored to the Home Establishment and posted to the Aeroplane Experimental Establishment, Martlesham Heath. In 1925 he attended a course at the R.A.F. Staff College, Andover. In August, 1926, he was appointed to H.Q., Air Defence of Great Britain, for Air Staff Duties.

In January, 1927, he was promoted Squadron Leader and in March, 1927, he was appointed to command No. 25 (Fighter) Squadron, at Hawkinge.

MARRIAGES.

HONEY—MORRIS.—On Oct. 15, at Brixton Independent Church, Flt. Lt. W. A. O. Honey, R.A.F., to Gwen Elsie Morris.

JONES—BILLINGS.—On Oct. 6, at Holy Rood, Crofton, Philip Jones, Flg. Off., R.A.F., to Nowelle, elder daughter of Mr. and Mrs. G. M. Billings, of Victoria, B.C., late of Shanghai.

COCKS—FOSTER.—The marriage arranged between Adrian Cocks, Flg. Off., R.A.F., and Doris Swenellen, daughter of Mr. and Mrs. E. A. Foster, of West Ealing, will not take place.

BIRTHS.

AIREY.—On Oct. 18, at The Barn, Easterton, to Kathleen (*née* Shearing), wife of Flt. Lt. James L. Airey, R.A.F.—a daughter.

GEARING.—On Oct. 15, at a nursing home at Wimbledon, Surrey, to Bonnie, wife of Flg. Off. Harold J. Gearing, R.A.F.—a son.

HUMPHREYS.—On Oct. 20, at Housesteads, Upfield, Addiscombe, to Margery (*née* Lowe), wife of Flt. Lt. D. d'H. Humphreys, R.A.F.—a son.

LOWE.—On Oct. 19, at 17, Manor Road, Bexhill, to Winifred, wife of Wing Cdr. J. C. M. Lowe, R.A.F.—a daughter.

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(Signed) F. T. HEARLE,
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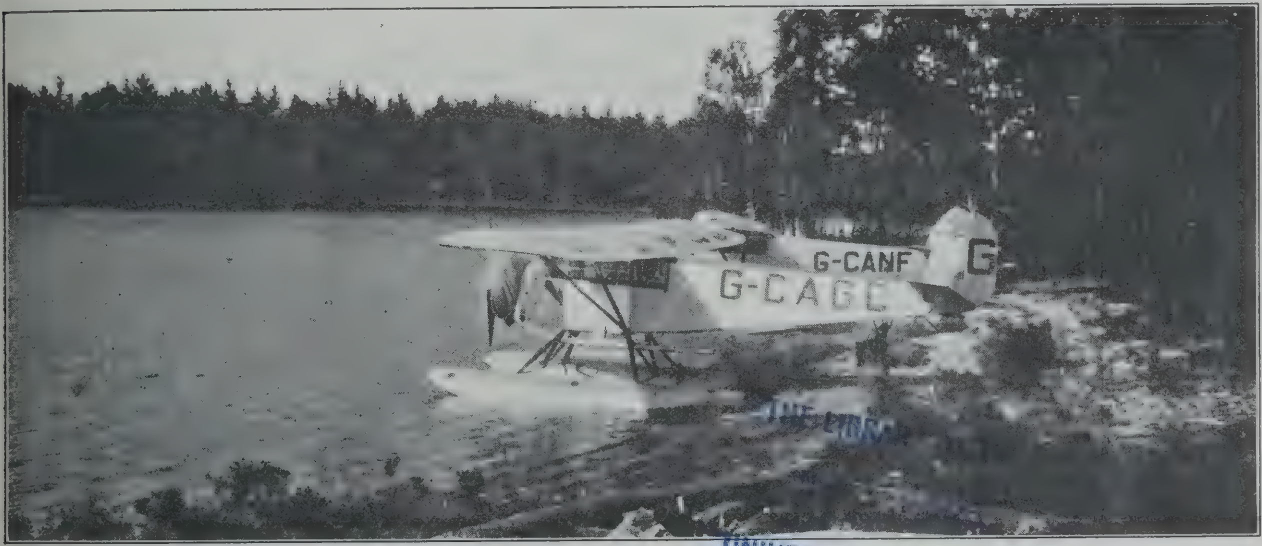
"ALL PLACES THAT THE EYE OF HEAVEN VISITS
ARE TO A WISE MAN PORTS AND HAPPY HAVENS."
(SHAKSPEARE—*King Richard II.*)



RESTING IN PEACE:—Two Fairchild monoplanes belonging to Fairchild Aviation, Ltd., of Grand' Mère, Quebec, on one of the upper reaches of the Ottawa River, where they have been engaged on a sketching contract for the James D. Lacey Company, of Montreal, one of Canada's foremost forestry engineering companies.

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BERLIN, Oct. 19.

CAPTAIN NEVILLE STACK, who made the first flight to India in a light aeroplane, made to-day what is claimed to be a record time for a non-stop flight in a light aeroplane, and possibly in any aeroplane.

He was bringing an urgent message from London to the A.D.C. Stand at the International Aeronautical Exhibition in Berlin. In an Avian light aeroplane fitted with a Cirrus Mark III engine of only 85 h.p. he covered the distance of over 1,000 kilometres (620 miles) between London and Berlin without a stop in 4hrs. 52mins.

From "The Times," Oct 20, 1928.

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ON THIS CLUB BUSINESS.

The worst of keeping a secret or respecting a confidence that sooner or later somebody blows the gaff on the show, nd, if one happens to be a journalist, one finds that the eward of virtue is merely to be scooped by a rival. But fe always has its compensations. And in a general way ne journal which tries to work the scoop gets hold of the rong end of the stick and puts both feet into it badly. (One resents this mixture of metaphors gratis and post free to ne's esteemed contemporaries).

In The Aeroplane of Aug. 22, there appeared an article ntitled "On Flying Clubs." It was written primarily as the esult of a letter from a friend in the States describing a cheme for a chain of Country Aviation Clubs in America. y a curious co-incidence, after that article had been written, nd before it appeared in print, one happened to meet a overnment official and to start discussing the question with im.

Rather to one's surprise he said that a very similar scheme as already being organised in this country. A little further nquiry in the right direction put one in possession, in condence, of the details of what is now commonly known as The Guest Scheme." This scheme in essence was decribed as being very like the American scheme set forth in he Aeroplane. And naturally nothing further was said bout it in this paper.

Last week various and sundry papers burst forth with much gitation into wholesale condemnation of the Guest Scheme, hich, according to them, is a Machiavellian plot to lure all ne poor little flying clubs into a vast organisation to deal ith Civil flying, apart from air-line flying, and then kill nem. In fact, the whole thing was described as a kind of pider and fly business in which the clubs were to be the uests to the spider's web and the spider itself was also to e a Guest.

The Guest Scheme.

Sq. Ldr. the Rt. Hon. F. E. Guest, P.C., C.B.E., D.S.O., .P., late Under-Secretary of State for Air and at present fficer Commanding No. 600 (City of London) (Bombing) quadron, Auxiliary Air Force, is, in fact one of the moving pirits and the most publicly-known member of what is now opularly known as the Guest Scheme.

This scheme is simply one to provide on a large scale a nain of aerodromes round the country. Its headquarters are to be at what used to be the Whitehead Aerodrome at Hanworth, where there is an old country house which the promoters propose to make into a kind of hotel for the members of their all-embracing club.

These promoters propose to appeal to the public in the course of the next few weeks with a scheme which looks very well on paper, and may not only come up to but exceed expectations if it is well managed, if the public is as interested in flying as one believes and if well-to-do people, led by the lads and lasses of the village of London, take the advice of one of the most convincing of De Havilland advertisements and "get off those crowded roads" into the air.

When one was first told of the scheme one was assured that the proposed firm, which for lack of an official title we may call Guest and Co., for purposes of argument, had no intention of absorbing existing clubs or of starting aerodromes where clubs exist, or of intriguing for taking away the subsidies of the clubs. The member of Guest and Co. with whom one discussed the scheme said that they hoped to get a subsidy from the Government. And he named a sum which was very considerably less than that which is paid at present in the aggregate to what are known as the approved clubs.

He said that because of the size of their organisation, if their capital was adequately subscribed, they would be able to buy aeroplanes and engines more cheaply than the clubs were able to buy. And he suggested that if existing aircraft manufacturers were *not* able to get their prices down to a more reasonable level, either by redesigning their machines for cheaper production or by sheer quantity production, Guest and Co. might find that it would pay them to build their own machines, and sell them in competition with other makers.

He also suggested that in either case, having got the price of light aeroplanes down, Guest and Co. might find themselves in the position in which they could sell the machines to the clubs at a small profit to themselves and a considerable saving to the Clubs. He also suggested that when the existing Government subsidy to the clubs comes to an end, as it will do about two years hence, for most of them, Guest and Co. might find it worth their while to take over some desubsidised clubs if such clubs found that they were unable to run themselves properly without a subsidy.

Altogether Guest and Co. struck one then and still strikes

A FINE PERFORMANCE.—Mr. Neville Stack and the Avro Avian (Cirrus Mk. III) on which he flew non-stop from Croydon to Berlin (about 630 miles) in 4 hrs. 52 mins.

one as being a very good scheme from the point of view of British Aviation. If the money can be got, either by public subscription or by letting in the Underwriters, the net result must be a great increase in air activity next year. It means an increase in the number of aerodromes in the country, it means an increase in the number of machines, it means an increase in air-mindedness and it means some more of that competition all round which is so good for trade.

THE ORIGIN OF THE AGITATION.

The present outcry seems to have started with an article by Mr. Alan Goodfellow in *The Elevator*,—the very amusing monthly official organ of the Lancashire Aero Club. Mr. Goodfellow is one of our most valuable workers in Aviation. During the War he distinguished himself as a pilot. He is now doing well as a lawyer. And from the start he has been one of the most active forces in the Lancashire Club. He has unusually sane judgment, and (or but) he has an abounding sense of humour and a considerable flow of rhetoric.

One only regrets that space in THE AEROPLANE prevents the publication in full of his article in *The Elevator*. Reduced to its least common denominator, the article says that at the last meeting of the General Council of the Associated Light Aeroplane Clubs a scheme was put forward for the formation of a company on a very large scale to deal with every conceivable branch of flying in the home country and to act as a feeder for Imperial Airways Ltd. Existing clubs were to be associated with the company, with economy in buying of, and repairs to, machines as a bait.

Mr. Goodfellow warned his readers that if this new company were formed with Government blessing any fresh subsidies would be diverted from the old clubs to the new company, and that if anything was going to be done about it in the way of complaining it ought to be done now.

He suggested as a basis for thought and discussion the following :—

> The granting of any Government subsidy to the proposed company should be made subject to two conditions as regards approved light aeroplane clubs already in existence.
>
> (a) That any such clubs shall have the right to become associated with the new company within a fixed time limit, upon terms which will reserve to the club full control of its private affairs.
>
> (b) That in respect of any subsidy to be paid to the new company for the training of pilots or the maintenance in training of existing pilots, the clubs associated shall, as regards any such training and maintenance done by them, be entitled to participate in the subsidy and to have the same paid to them in like manner as if such training and maintenance had actually been carried out by the new company itself.
>
> Under the second paragraph the subsidy would presumably be paid to the new company in the first place, and handed on by it to the respective clubs, and in such case it would, of course, be necessary to give to the new company the same powers of general supervision as are now exercised by the Air Council. There should, however, be a right of appeal to the Air Council in case of dispute.
>
> Some such provisions as these would, in the writer's view, ensure the continuance of such clubs as deserved to continue, and the maintenance of the club spirit and tradition, without in any way impairing the usefulness of the new scheme. His excuse for setting them up must be that anything which is going to be done in the matter should be considered as early as possible and not left over vaguely till the details of the scheme have all been settled.

With all of this one cordially agrees,—assuming that Guest and Co. do want the clubs to be associated with them, or that they wish to absorb clubs which cannot get along under existing conditions. But so far as one can gather from one of the prime movers in Guest and Co. all this alarm is unnecessary.

Guest and Co. merely ask for a subsidy on the ground that they propose to do work which will be for the publ benefit. In this they are only asking for a subsidy on th same grounds as the clubs themselves and Imperial Airway Ltd. If at the expiry of the present period the clubs ca persuade the Government to give them fresh subsidie Guest and Co. have no objection, and if in the meantim all or any of the clubs can put themselves on such a fir footing that they can exist without any subsidy, so muc the better for the clubs.

One's informant was quite definite in saying that ther were *some* clubs which he would not touch under any ci cumstances. Presumably he meant that they are so badl run that energy would be merely wasted in trying to mak a success of them.

And he was equally emphatic in stating that Guest an Co. would be quite happy to work amicably with such club as chose to remain independent, and may be able to offe them certain advantages in buying machines and spares an so forth.

All the newspaper talk about a grasping attempt to forn a monopoly of individual flying such as Imperial Airway Ltd. has in air-line flying, seems to be merely newspape talk.

Personally one is all against monopolisation of any sort There is some excuse for the monopoly of the subsid granted to Imperial Airways Ltd., but there would be non for such a monopoly as is suggested for Guest and Co There is, however, quite a good reason for granting t Guest and Co. a subsidy similar to that which is grante to the various clubs—always provided that the subsidy coul be found by saving something out of the Civil Aviation Vot without putting any fresh burden on the British taxpayer

All this pother among the clubs rather reminds one of large dog bouncing in among a lot of little ones, filled wit a friendly desire to play with them. The small dogs tak fright and dash around barking shrilly, under the im pression that the big dog is going to eat them. But after while they find that the big dog is quite harmless and a times even helpful when strange dogs appear.

One hopes that this is what will happen in this particula branch of Civil Aviation. Or to change the simile, on hopes that the lion will lie down peacefully with the lambs And if some of the lambs find it more peaceful inside th lion, at any rate he will be a better fed and more effectiv lion.

If Guest and Co. should prove a success on its merits, s much the better, and we shall all owe a debt of gratitude to Guest and Co. and to the people who find the money They will deserve whatever dividends may come to them And if, having found the money, the firm should not prov to be a financial success, at any rate those who have los their money will have the comfortable feeling that thei wealth has been spent in helping the progress of Britis Aviation.—C. G. G.

HANDS ACROSS THE AIR.

On Tuesday, Oct. 30, Mr. Lester D. Gardner, President o the Aeronautical Chamber of Commerce of America, accom panied by Mr. William B. Stout, chief of the Stout Ai Services Inc., called at the Air Ministry, Gwydyr House, an on behalf of all American aeronautical interests presented t the Air Ministry seven reels of cinematograph film dealin with the various flights of Charles Lindbergh, beginnin with his trans-Atlantic flight and following from place t place his tour through the small Central American nation and to various cities of importance in the United States.

THE SPORT OF FLYING.—Miss Winifred Spooner in her slot-winged Gipsy-Moth in the rain at Swallowfield, Reading, on Oct. 27. —(*"Aeroplane" photograph.*)

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No other engine in the World has such a record of consistent reliability.

Napier reliability is the result of *excellent design* combined with *extreme care in manufacture*, whilst a *rigid system of inspection* ensures that the *high standard* laid down is always maintained.

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¶ *England—round India—to Australia—round Australia and back to Singapore. Carried out by four Supermarine-Napier "Southampton" flying boats, each fitted with two Napier engines—184,000 engine miles. The greatest formation flight ever made.*

¶ *Cairo to Cape Town and back. On two occasions has this flight been carried out by four Fairey machines of the Royal Air Force, each fitted with Napier engine—100,000 engine miles.*

¶ *Spain to South America by a Dornier flying boat fitted with two Napier engines—12,518 engine miles.*

The engines used on these flights were standard Napiers. No engine trouble was experienced.

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Mr. Gardner and Mr. Stout were introduced officially to Sir Samuel Hoare by Mr. Atherton, Chargé d'Affaires at the U.S. Embassy in the absence of the Ambassador, who was supported by Major Harmon, the U.S. Army Air Corps Attaché. They were received by Sir Samuel Hoare, Secretary of State for Air, accompanied by his Private Secretary, Mr. C. Ll. Bullock, and supported officially by Sir John Higgins, K.C.B., K.B.E., D.S.O., A.F.C., Air Member for Supply and Research.

In a few well-chosen words Mr. Gardner expressed the hope of all concerned with American Aviation that these films might be acceptable as historical records, and Sir Samuel Hoare on behalf of the British aeronautical community accepted the films with gratitude.

Though one has not had the pleasure as yet of seeing these films one gathers that they are in fact very valuable. Whether they would be likely to appeal to an ordinary cinema audience is doubtful, but to an aeronautical audience they would certainly be of absorbing interest.

Charles Lindbergh's first landing in Europe was in the dark and therefore could not be photographed. But his landing at Croydon, when the crowd broke over the aerodrome and he landed practically on their heads is, one gathers, excellently shown. Also various and sundry of his landings and startings at other aerodromes make good flying pictures. But the chief interest to more intelligent spectators centres in the types of people assembled in the chief cities of so many nations to do honour to one who has justly become the aeronautical hero of the White Nations.

Apart from the really distinguished personages who have properly honoured Charles Lindbergh, and Aviation, by receiving him, there is an immense amount of humour to be got out of the comic people who have been honoured by visits from Charles Lindbergh as the representative of Aviation. Comic mayors of provincial towns vie in curiousness with comic Dago officials and their still more comic Committees of Reception,—one only regrets that Lindbergh had no time in which to include in his tour, and in his pictures, some of our own Municipal curiosities. And the views of the different types of crowds in so many different countries which have gathered on these occasions themselves provide excellent opportunities for study of the types of different nations.

These films are in fact a very valuable contribution to our national archives. The Air Ministry has, no doubt, many other films of great historical value, taken during the War and since, of our aeronautical activities. They are never shown, of course, but they exist and will be available some day in the future when the public are aeronautically educated enough to want them. And when that time comes the Lindbergh film should be in great demand.

Similar sets of the Lindbergh film have already been presented to the Air Departments of the Governments of France, Germany and Belgium. And one believes that yet other sets are to be presented to other Governments.

So far as Europe is concerned certainly no better aeronautical ambassador could be charged with these duties than Mr. Gardner. He is not only President of the representative aircraft trade association of America but he is one of the pioneers of American aeronautical history, as the founder, and until recently the proprietor, of *Aviation*, the leading American aircraft paper. He is now President of Aeronautical Industries Inc., a financial group which has interests in many of the leading American aircraft firms. So in every way he is thoroughly representative of the commercial side of American Aviation.—C. G. G.

BERLIN AND BACK BY SPARTAN.

The two longest non-stop light-aeroplane passenger-flights on record were put up on Oct. 24 and Oct. 27 by the Simmonds Spartan biplane (Cirrus Mark III engine) when it flew, on the former date, non-stop from Croydon to Berlin in 7 hr. 10 min. flying time, and followed this by an equally meritorious non-stop return on the Saturday. Each of these flights is, one believes, the longest ever made by a light aeroplane with a passenger.

The actual distance record for light aeroplanes was made by the late M. Drouhin with Mlle. Maryse Bastié as passenger on a Caudron biplane. This was advertised at first as a record put up by a woman, the impression being created that Mlle. Bastié piloted the machine alone. Later, as is common with French and feminine records, discoveries were made. And then the admission was extracted that M. Drouhin piloted the machine.

The Drouhin flight was from Paris to Treptow, a small town some distance to the north-west of Berlin, and the distance was 1,058 kilometres, approximately 656 miles. So far as accuracy can be got by measuring on an ordinary map with a ruler the distance in a straight line from Croydon to Berlin is almost exactly the same. But as the Spartan had to fly down to Dover, across to Calais and then up onto the Amsterdam-Hannover line, the actual distance covered was considerably greater than the existing distanc record.

A day or two before starting the Spartan had been passe by the officials of the Air Ministry and given a Certificat of Airworthiness to fly at a total weight of 1,680 lbs. On does not happen to know the weight of the machine, but sh carried 48 gallons of petrol, 56 lbs. of luggage, and 10 lb of tools and spares. The long-distance tanks with whic she was fitted added a weight of 45 lbs. to her norma weight. The pilot was Mr. H. W. R. Banting, whos physique belies his name, and the passenger was Lieut.-Co Louis Strange, who himself is not exactly a light-weight.

The existing Spartan, being an experimental machine, i heavier than the limit allowed for light aeroplane compet tions and records. Consequently the performance with th Mark III Cirrus engine is all the more praiseworthy. Bu being over weight and not having been weighed before th start, the Croydon—Berlin flight cannot be claimed as record.

The return journey on Saturday, Oct. 27, took exactly si hours. Clouds were low down, and through the hills nea Bentheim the going was rather precarious. But there was good, healthy east wind, and so the journey was quite fas Col. Strange, who is himself one of the most experience pilots in this country, expressed to the writer his hig appreciation of Mr. Banting's piloting, both as regards hi course-finding and his judgment in getting through hi country in low clouds. As a pilot himself he is naturally no inclined to be too confident in the piloting of others, bu he has absolute confidence in Mr. Banting's judgment an ability.

The young firm of Simmonds Aircraft Ltd. is to be cor gratulated on the very fine show which has been put up b the Spartan wherever it has appeared. When one can ge all the advantages of interchangeability of parts offered b the Spartan together with high performance, the machin must be regarded as a very good commercial proposition.

THE "GRAF ZEPPELIN'S" RETURN JOURNEY.

The airship *Graf Zeppelin* left Lakehurst (New Jersey) air ship station at 01.54 hours (06.54 hrs. G.M.T.) on Oct. 29 o her return journey to Friedrichshafen.

She had on board 64 persons including crew. One of the is reported to be a stowaway who was discovered some hour after departure. Also 32 bags of mail are carried.

The ship was seen by the *S.S. American Trader* at 18.1 hrs. G.M.T. about 500 miles East of Boston heading South East.

[The *S.S. American Trader*, a queer name which sticks i the memory, has appeared before in the Press as seeing ai craft on trans-Atlantic journeys. This habit of seeing thing should be watched by her skipper or she may come to b regarded as a wet ship.—ED.]

THE THROUGH ROUTE TO INDIA.

Flt. Lt. B. C. H. Cross, D.F.C., who has for some year been attached to the Marine Aircraft Experimental Estal lishment, Felixstowe, has resigned his commission in th R.A.F. to join the staff of Imperial Airways Ltd.

He will leave England at the head of a survey party durin November to select the most suitable positions for subsidiar refuelling bases on the Mediterranean section of the ai route from London to Egypt which is to start next sprin and will probably thereafter act as the company's Air Supe intendent on that section of the route.

Report says that main details of the route to India hav now been fixed. From London passengers will travel b aeroplane to Bâle, where they will board the night expre to Genoa. At Genoa they will embark on Short Calcutt flying-boats (three Bristol Jupiter engines) and fly down th West coast of Italy, calling at Rome and Naples. Thenc they will cross the Gulf of Taranto, calling at either Brindis Taranto, or possibly Gallipoli (Italy), and on to Corfu.

From Corfu the route follows the coast of Greece, an crosses the Mediterranean to Torbruk (Italian Libya) wit one stop at Suda Bay (Crete) and follows the north Africa coast to Alexandria, where a new combined seaplane statio and aerodrome is to be provided by the Egyptian Gover ment.

The existing Middle East Service from Cairo to Basra will be extended to Alexandria, at one end, and down th Persian Gulf to Karachi at the other, thus providing a con plete through route from London to India with the sole e ception of the short gap between Bâle and Genoa.

THE FLIGHT TO THE DUTCH EAST INDIE

The fifth of the Fokker FVII-3m monoplanes to fly fro Amsterdam to Batavia reached Rangoon on Oct. 25.

A Section of the Main Erecting Shop shewing All-metal Air Craft in the course of construction

NOW that metal construction forms the usual means of modern aircraft construction, the advantages of quantative production to the user are even more apparent than hithertofore. The increased use of press tools which becomes possible when large numbers of aircraft are being manufactured, and the more complete utilization of jigs for all components and parts—just to mention two features — render not only a more accurate and effective construction, but also forms an important service item in the true interchangeability of spare parts.

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THE ROYAL AIR FORCE.

The London Gazette.

October 23.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—R. F. J. Strange is granted a S.S. comn. as a Flg. Off. for three years on the active list (Sept. 29); Flg. Off. C. U. G. Tristram is transferred to the Reserve, Class A (Oct. 9); Flt. Lt. F. Thomasson, D.F.C., M.M., is transferred to the Reserve, Class B (Oct. 24); Flt. Lt. W. G. L. Montagu-Douglas-Scott resigns his S.S. comn. (Sept. 28).

The following Lts., R.N., Flg. Offs., R.A.F., cease to be attached to the R.A.F. on return to Naval duty:—H. Ditton (Aug. 2); J. I. Robertson (Oct. 16).

Flg. Off. H. F. Gower is dismissed the Service by sentence of General Court-martial (Oct. 10).

STORES BRANCH.—Sq. Ldr. W. J. Waddington, O.B.E., is placed on the retired list (Oct. 19); the notification concerning Flg. Off. O. W. T. Rogers, which appeared in the *Gazette* of Oct. 9, is cancelled.

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—The following are granted comns. in the Special Reserve as Plt. Offs. on probation (Oct. 8):—J. K. Brew, D. W. Reid. Plt. Off. R. P. J. Radbourne is promoted to the rank of Flg. Off. (Oct. 20); Flt. Lt. F. Thomasson, D.F.C., M.M., is employed with the Regular Air Force for a period of two years (Oct. 24).

The following Flg. Offs. relinquish their comns on completion of service:—W. M. Miller (Oct. 13); A. G. Lambert (Oct. 21).

Appointments.

Week ending October 29.

GENERAL DUTIES BRANCH.—Wing Commanders A. H. S. Steele-Perkins, O.B.E., to H.M.S. *Hermes*, for duty as Senior Air Force Officer, 19/10. A. Shekleton, D.S.O., to Aircraft Depot, 'Iraq, pending taking over command, 20/10. J. A. G. De Courcy, M.C., to No. 70 Sqdn., 'Iraq, pending taking over command,

Squadron Leaders J. V. Read, M.B.E., to R.A.F. Depot, Middle East, 20/10. D. E. Stodart, D.S.O., D.F.C., to Armoured Car Wing, 'Iraq, 20/10. E. B. Rice, to No. 70 Sqdn., 'Iraq, 20/10. J. W. Woodhouse, D.S.O., M.C., to No. 55 Sqdn., 'Iraq, 20/10. W. E. Reason, to Aircraft Depot, 'Iraq, 20/10. O. C. Bryson, M.C., D.F.C., A.M., to No. 5 Sqdn., India, 20/10.

Flight Lieutenants N. L. Desoer, to No. 20 Sqdn., India, 20/10. C. H. Harrison, to Aircraft Park, India, 20/10. F. A. Norton, to Home Aircraft Depot, Henlow, 22/10. J. M. Mason, D.S.C., D.F.C., to No. 70 Sqdn., 'Iraq, 20/10. E. I. Bussell, to No. 84 Sqdn., 'Iraq, 20/10. G. T. H. Pack, to Aircraft Depot, 'Iraq, 20/10. B. B. Caswell, to Armoured Car Wing, 'Iraq, 20/10. G. L. Carter and E. M. Drummond, to H.Q., 'Iraq, 20/10. V. Buxton, O.B.E., to R.A.F. Station, Kenley, 18/10. J. Whitford, to No. 502 Sqdn., Aldergrove, 15/10. H. A. Haines, D.F.C., to R.A.F. Depot, Uxbridge, 8/10. R. J. Montgomery-Moore, to No. 22 Group H.Q., S. Farnborough, 1/12.

Flying Officers J. E. Clayton, to No. 111 Sqdn., Hornchurch, 22/10. C. R. Cubitt, to No. 43 Sqdn., Tangmere, 22/10. V. C. Taylor, to No. 56 Sqdn., North Weald, 15/10. E. G. Cayley, to No. 19 Sqdn., Duxford, 17/10. W. J. H. Lindley, to No. 19 Sqdn., Duxford, 17/10. N. C. Pleasance and J. H. Harris, to No. 84 Sqdn., 'Iraq, 20/10. S. R. Sherman, to No. 6 Sqdn., 'Iraq, 20/10. E. V. S. Lacey and V. Q. Blackden, to No. 20 Sqdn., India, 20/10. F. F. W Hall, to Station H.Q., Kohat, 20/10. P. Slocombe, to Aircraft Depot, India, 20/10. H. D. Spreckley, to No. 60 Sqdn., India, 20/10. H. A. G. Comerford and W. G. H. Ewing, to No. 28 Sqdn., India, 20/10.

Pilot Officers G. W. Monk and R. C. Hancock, to No. 20 Sqdn., India, 20/10. R. G. Forbes, to Aircraft Depot, India, 20/10.

MEDICAL BRANCH.—Wing Commander T. S. Rippon, O.B.E., to R.A.F. General Hospital, 'Iraq, 20/10.

Squadron Leaders T. C. St. C. Morton, M.D., M.R.C.P., D.P.H D.T.M. and H., to H.Q., A.D.G.B., Uxbridge, 1/12. E. A. Lumley, M.C M.B., to R.A.F. Depot, Uxbridge, 31/10.

Flight Lieutenants R. G. Freeman, to H.Q., Middle East, 20/1 J. Hutchieson, M.B., to H.Q., India, 20/10.

Flying Officer A. R. French, to R.A.F. Base, Malta, 20/10.

STORES BRANCH.—Wing Commander W. J. Shields, to Aircraft Depo 'Iraq, 20/10.

Squadron Leaders G. Stevens, O.B.E., to H.Q., 'Iraq, 20/10. A. J Briddon, to Aircraft Depot, 'Iraq, 20/10.

Flight Lieutenants W. Sutherland, M.B.E., to H.Q., 'Iraq, 20/1 J. K. McDonald, to Station H.Q., Hinaidi, 20/10. W. St. J. Littlewoo to Supply Services, 'Iraq, 20/10. J. R. Gardiner, to Air Ministr (D. of E.), 12/9.

Flying Officers H. J. Bamber, to Supply and Stores Depot, Aden 20/10. R. S. Sawyer, to Aircraft Park, India, 20/10 H. D. Jackman to Aircraft Depot, 'Iraq, 20/10.

ACCOUNTANT BRANCH.—Wing Commander H. G. Jones, to H.Q., 'Iraq 20/10.

Squadron Leader W. G. W. Prall, to Station H.Q., Hinaidi, 20/10.

Flight Lieutenant V. G. A. Bennett, to Station H.Q., Hinaidi, 20/1

Flying Officers J. H. S. Richards, to Station H.Q., Hinaidi, 20/1 D. C. Stone, to Station H.Q., Cattewater, 8/10.

CHAPLAINS BRANCH.—The Rev. K. C. H. Warner, D.S.O., M.A., t No. 4 F.T.S., Middle East, 20/10. The Rev. J. H. Ogilvie, M.A., t H.Q., 'Iraq, 20/10.

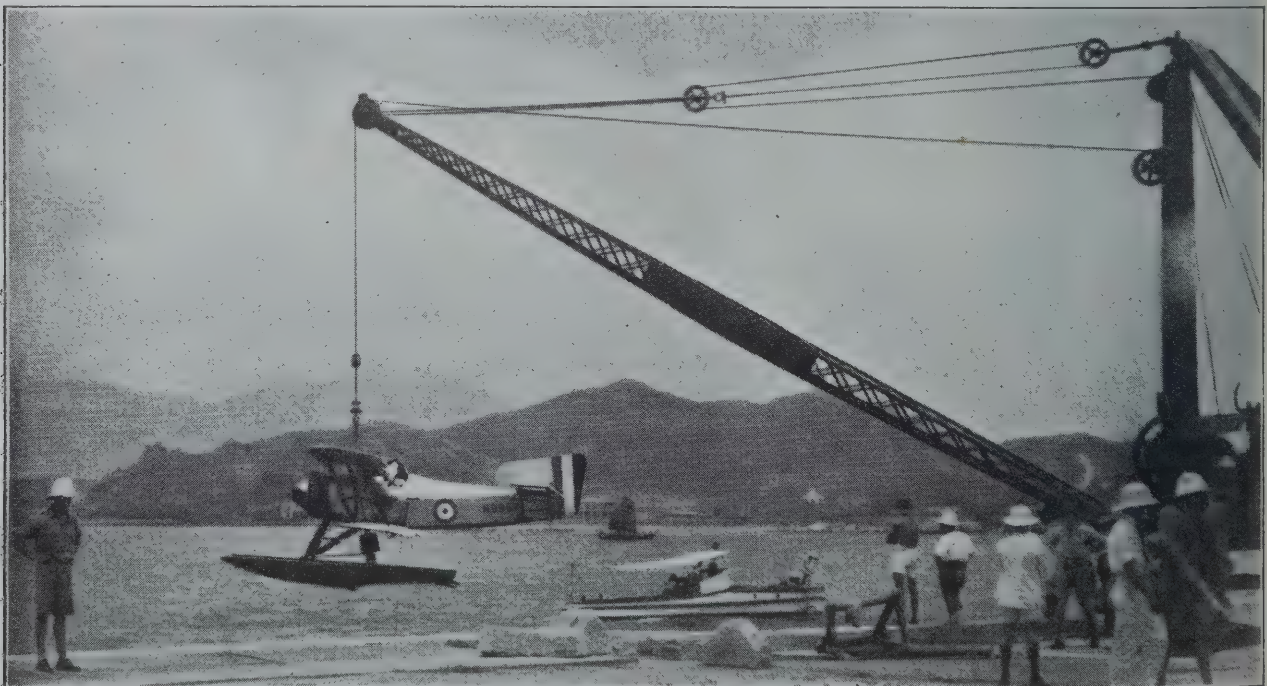
The High Speed Flying Section.

So much public interest has been taken in what is commonly but erroneously known as the High Speed Flight tha a few words as to its exact status may be acceptable.

The High Speed Flying Section of the Marine Aircraft Experimental Establishment, Felixstowe, to use its correct designation, exists for the experimentation of high speed aeroplanes and for the training of officers in the handling o such aircraft. According to an official pronouncement appointments to Felixstowe of officers who are thereafter employed in this section have nothing to do with competitio flying of any kind, either in the Schneider Trophy Contes or any other.

Certain officers chosen from the pilots of the R.A.F. a large are attached to Felixstowe for high speed training may be found suitable as pilots for Schneider Trophy racers Of those officers whose names have appeared in print in connection with the Schneider Trophy Contest Flt. Lt. D. D'A. A Greig, D.F.C., A.F.C., and Flg. Off. T. H. Moor are on the strength of the Establishment at Felixstowe, the former as a pilot and the latter as an engineer officer. Flt Lt. G. H. Stainforth, Flg. Off. C. S. Staniland and Flg Off. R. L. R. Atcherley are attached to the Establishment for high speed training.

The achievements of these officers, if and when they may be chosen to fly in the Schneider Trophy Contest next year must then become a matter of public interest and of Press comment. In the meantime, beyond noting their appointments, their affairs should have nothing to do with the Press One is therefore the more astonished to see a publication which is devoted to the Services taking upon itself to criti-



ON THE CHINA STATION.—The method of launching and hauling-in seaplanes at the R.A.F. Base, Kai Tak. The machine is a Fairey Flycatcher of No. 403 (Fleet Fighter) Flight, R.A.F., Kai Tak.

The "CIRRUS" Again!

The Simmonds "CIRRUS-SPARTAN."

"The Times," 25th Oct. 1928.

NON-STOP FLIGHT, LONDON TO BERLIN
A LIGHT AEROPLANE RECORD.

"A Simmonds 'CIRRUS-SPARTAN' aeroplane, piloted by Mr. H. W. R. Banting, with Lieutenant-Colonel L. A. Strange as passenger, created yesterday what is stated to be a world's record for a non-stop flight by a light aeroplane with passenger. The machine, with 50 gallons of petrol on board, left Croydon Aerodrome at 6.30 a.m. and reached Berlin in direct flight at 12.45 p.m.

The aeroplane is the same one as that piloted by Flight-Lieutenant Webster in this year's King's Cup Race, and is of special interest because it is fitted with interchangeable wings and control surfaces. Only a little more than half the fuel was expended on the flight. The engine used was a standard A.D.C. Cirrus Mark III, developing 85 horse power."

"The Sunday Times," 28th Oct., 1928.

NON-STOP FLIGHT, LONDON TO BERLIN.

"The Simmonds 'CIRRUS-SPARTAN' which on Wednesday last made the world's longest non-stop flight for a light aeroplane, carrying pilot and passenger, by flying direct from London to Berlin, yesterday repeated this remarkable feat by returning non-stop with the same crew from Berlin to London in under six hours."

The Avro "CIRRUS-AVIAN."

◆

"The Times," 20th Oct., 1928.

RECORD LONDON TO BERLIN FLIGHT.

"Captain Neville Stack, who made the first flight to India in a light aeroplane, made to-day what is claimed to be record time for a non-stop flight in a light aeroplane, and possibly in any aeroplane.

He was bringing an urgent message from London to the A.D.C. stand at the International Aeronautical Exhibition in Berlin. In an AVIAN light aeroplane fitted with a Cirrus Mark III engine of only 85 h.p. he covered the distance of over 1,000 kilometres (620 miles) between London and Berlin without a stop in 4 hrs. 52 mins."

Fit a

"CIRRUS," The Proven Aero Engine.

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cise the Air Ministry for its treatment of one individual officer.

Mr. Staniland happens to have made something of a reputation for himself as a motor racer, which of course is his own affair but certainly should have nothing to do with his Service career. The publication to which one has referred states that Mr. Staniland was posted to the High Speed Flying Section at Calshot on the understanding that his Short Service Commission, which expires in March next, would be extended, presumably with the idea that he should fly in the Schneider Trophy Contest. No such posting has ever been made and no such section exists at Calshot. The statement also appears that he is back at his former unit at Northolt after only a fortnight with the High Speed Section. That surely is the affair of the Personnel Department of the Air Ministry and not of the Press.

Thereafter appears the following paragraph :

> Why he was ever sent there, if there was no intention to extend his five-year commission, is hard to understand. The whole thing savours of bureaucratic incompetence. Anyway, the withdrawal of Mr. Staniland is a real loss to British high-speed flying, and to the chance of another British victory in the Schneider Trophy Contest.

One can only characterise this utterance as an impertinence such as one would barely expect from the cheaper daily newspapers. This curious criticism ends by saying :

> The R.A.F. is not so well off in pilots of the right type that it can afford to spare so accomplished, and at the same time so popular, an officer.

As a matter of fact the difficulty in the R.A.F. is to choose pilots from among so many of equal merit. And nowhere more than in the R.A.F. is there truth in the proverb "There are better fish in the sea than ever came out of it." Mr. Staniland has one's sympathy in the misdirected enthusiasm of some journalistic friend or other.—C. G. G.

Sir Philip Sassoon's Voyage.

Sir Philip Sassoon, Under-Secretary of State for Air, who is making a tour of the R.A.F. Stations in the Middle East, 'Iraq and India, left Karachi on Oct. 24 in the Blackburn Iris (two Rolls-Royce Condors).

A message from Basrah dated Oct. 25 stated that the flying-boat was again held up at Jask owing to an engine defect. A message from Karachi, also dated Oct. 25, stated that another aeroplane with a spare engine had left for Jask.

On Oct. 26 Sir Philip Sassoon flew to Shaibah from Jask in the R.A.F. machine which came from Karachi. The Iris remained at Jask.

The R.A.F. Display 1929.

The following announcement has been issued by the Air Ministry :—

The tenth Royal Air Force Display will be held at Hendon Aerodrome on Saturday, 13th July, 1929. This date, which is somewhat later than in previous years, has been decided upon so that visitors can conveniently if they wish combine visits to the Display and to the International Aero Exhibition which opens at Olympia on July 16 next.

Details of the Display programme will be announced later.

The Auxiliary Air Force.

The Esher Trophy, which is awarded annually to the Squadron of the Auxiliary Air Force which has attained the highest all-round efficiency during the year, has been awarded this year to No. 601 (County of London) Bombing Squadron. No. 601 Squadron won this Trophy, which goes with the Air Council's Bounty, in 1926. The Squadron is commanded by Sq. Ldr. the Lord Edward Grosvenor.

Skilled aircraft hands will be interested to hear that there are still one or two vacancies in the establishment of this Squadron for skilled fitters and riggers. Enlistment is for a period of five years and applications should be made at Town Headquarters, 54, Kensington Park Road, Notting Hill, W.11. The aerodrome is at Hendon and although at present the pilots are of commissioned rank only, all ranks get a certain amount of flying during the year.

The high standard of efficiency and the low cost to the Treasury of the Auxiliary Air Force indicate that it will be a very big and important branch of the Service in the future and vacancies in the original Squadrons will be very hard to find, even for skilled tradesmen.

The Coast Defence Co-operation Flight.

The Coast Defence Co-operation Flight, R.A.F., the return of which to Eastchurch from Shoeburyness was noted in The Aeroplane last week, is normally stationed at Eastchurch, where it is included in the establishment of the Armament and Gunnery School, R.A.F.

The Flight is equipped with two Fairey III.F machines (Napier Lion engine) and is manned by four officers and fifteen airmen.

The Flight is affiliated to the Coast Defence Artillery School, Shoeburyness, and co-operates with the Coast Defence Artillery in the development of air observation for coastal batteries.

Naval Co-operation.

The Times of Oct. 24 states :—

> A new order has been issued to aircraft-carriers in respect of th *personnel* carried in the attendant destroyer during flying operations During such operations at sea, an officer or rating conversant wit aircraft construction, and who should preferably be a good swimmer is to be carried in the attendant destroyer, to go away in additio to the sea boat's crew when salving aircraft. If there are no officer or ratings in the destroyer who have received the necessary instruc tion to give them this knowledge, one is to be lent from the aircraft carrier on which the destroyer is attending. In the case of tw destroyers following up, the leader only need carry this officer o rating. A sick berth rating is to be lent to a destroyer attending o aircraft. The commanding officers of attendant destroyers are to b kept informed of the actual number of persons in each multi-seate aircraft in the air.

No. 13 (Army Co-operation) Squadron.

No. 13 (Army Co-operation) Squadron, which wa temporarily located at Odiham, has now returned to Andover

The Kinkead Memorial.

Marshal of the R.A.F. Sir Hugh M. Trenchard, Bt., G.C.B. D.S.O., D.C.L., LL.D., Chief of the Air Staff, will unveil memorial picture to the late Flt. Lt. S. M. Kinkead, D.S.O. D.S.C., D.F.C., R.A.F., at the R.A.F. Club, Piccadilly, a 12.30 p.m. on Monday, Nov. 5. Non-members of the Clu who have subscribed to the memorial are invited to b present.

The picture is an oil portrait of Flt. Lt. Kinkead in servic uniform. The artist is Mr. George Harcourt, R.A.

Flt. Lt. Kinkead was killed on Mar. 12, 1928, during a attempt to break the World's seaplane speed record ove Southampton Water.

Permanent Commissions.

The recommendations submitted in accordance with W.O 237 of 1928 and certain other recommendations have bee carefully considered by the Air Council and in consequenc the following officers have been or are being gazetted a appointed to permanent commissions with effect fro Oct. 1, 1928 :—

Flight Lieutenants : D. W. Clappen, D. F. Lucking, F. H. Woolliams W. Wynter-Morgan, M.C.

Flying Officer : D. D. MacA. Eastwood.

University Courses.

University Course "A," Cambridge.—The followin officers, who were selected for University Course "A" i October, 1926, have successfully passed the course :—

Flt. Lt. C. K. Chandler, M.B.E., obtained the degree of B.A. wit honours. Flt. Lt. F. E. Vernon obtained the degree of B.A. wit honours. Selected for course "B" beginning October, 1928. Flt. Lt H. I. T. Beardsworth obtained the degree of B.A. (ordinary). Flt. Lt G. F. Smylie, D.S.C., obtained the degree of B.A. (ordinary). Flt Lt. F. A. Norton, who was selected to remain at Cambridge for third year for a course of research, has been awarded the degre of M.Sc.

Flt. Lt. C. K. Chandler is now entitled to classification S and Flt Lts. F. E. Vernon, H. I. T. Beardsworth and G. F. Smylie to E.

University Course "B," Imperial College of Scienc and Technology.—The undermentioned officer, who wa selected for course "B" beginning October, 1927, has satis factorily completed the course and has been awarded th Diploma of the Imperial College for Advanced Study :—

Flt. Lt. L. M. Iles, A.F.C.

University Course "C," Imperial College of Scienc and Technology.—The undermentioned officer, who wa selected for course "C" beginning in October, 1927, ha satisfactorily completed the course :—

Sq. Ldr. R. G. Parry, D.S.O.

University Course in Meteorology.—The undermen tioned officer, who was selected to attend the course i Meteorology beginning Oct. 27, has completed the cours satisfactorily and has been awarded the Imperial Colleg Certificate for post-graduate work :—

Flt. Lt. W. J. Seward. This officer is now entitled to classificatio "Met."

Modern Foreign Languages.—The undermentioned officer and airmen passed the examinations held in June, 1928 :—

London.—*French* (preliminary) : Flg. Off. M. H. Jenks. (Interpreter 2nd class) : Flt. Lt. A. B. Wiggins, Flg. Off. G. A. R. Muschamp, Pl Off. S. M. Musgrave, No. 332416 Cpl. D. Edwards. (Interpreter, 1s class) : Sq. Ldr. J. O. Andrews, D.S.O., M.C.

'Iraq.—*Arabic* (Requalified as interpreter, 1st class) : Sq. Ldr. K. C Buss (colloquial), Flg. Off. D. J. Sherlock, No. 356248 L-AC. E. A Baker.

Middle East.—*French* (preliminary) : Sq. Ldr. H. McW. Danie M.D., Flt. Lt. E. D. D. Dickson, M.B., No. 355576 Sjt. Plt. J. Thom No. 361805 L-AC. (Act. Cpl.) C. Whitworth, No. 353777 L-AC. W. H Mason. (Interpreter, 2nd class) : No. 346503 Cpl. H. A. J. Scognamill *German* (preliminary) : No. 346503 Cpl. H. A. J. Scognamillo. *Arabi* (colloquial) : Sq. Ldr. H. McW. Daniel, Flg. Off R. W. Collinson (preliminary) : Flt. Lt. L. de L. Leder.

Malta.—*French* (preliminary) : Flg. Off. A. H. Willetts, Plt. Of C. Francis. *Italian* (interprepter, 2nd class) : No. 348878 L-AC. S. S Spiteri.

(*Continued on page 759.*)

WELL DONE, SPARTAN!

LONDON - BERLIN NON-STOP WITH TWO UP
24TH OCTOBER 1928:

BERLIN - LONDON NON-STOP WITH TWO UP
27TH OCTOBER 1928.

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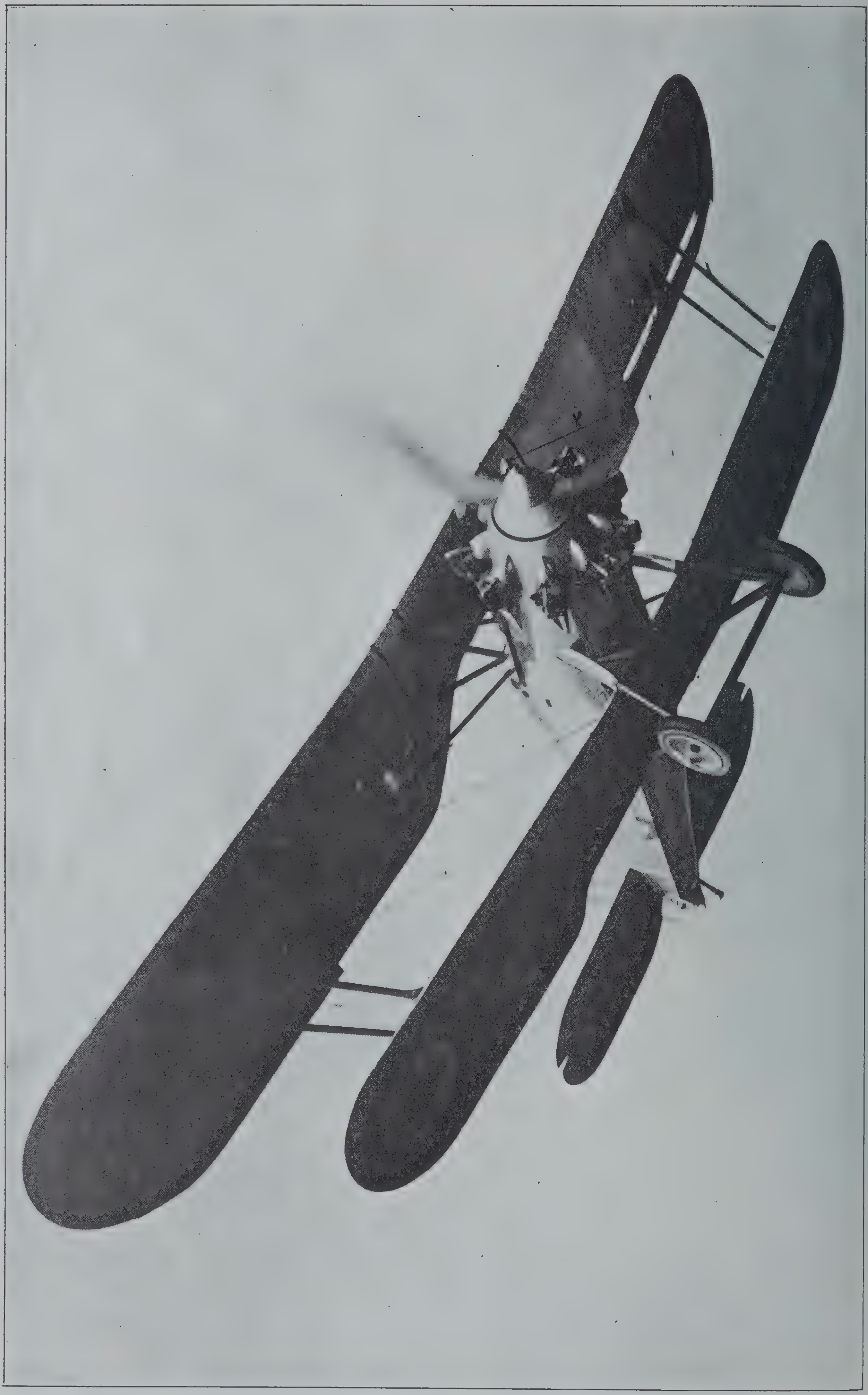
50 LBS. OF LUGGAGE WAS TAKEN & THERE WAS A MEAN RESERVE OF 15 GALLS OF PETROL WHICH EMPHASISES THE REAL COMMERCIAL UTILITY OF THE SIMMONDS-CIRRUS SPARTAN - £620

SIMMONDS AIRCRAFT LTD SOUTHAMPTON.



"Flight" Photo.

The "BRISTOL" BULLDOG, fitted with the "BRISTOL" JUPITER (Series VII) engine.

AERONAUTICAL ENGINEERING

SUPPLEMENT TO "THE AEROPLANE"

CLEANNESS AND PERFORMANCE.

By W. H. Sayers.

Aircraft designers in all countries have long recognised hat the main hope of securing marked improvement in the erformance of aeroplanes by purely aerodynamic methods ay in the reduction of resistance—in other words in the levelopment of so-called "clean design." Since the de-elopment of the modern theory of aerofoils has proved eyond any reasonable doubt that there is no hope of pro-lucing wing systems appreciably more efficient than those lready known, the potential sphere for aerodynamic im-rovement has been narrowed down to that of attaining the ninimum possible of frictional and turbulent resistance aused by components other than the lifting surfaces proper.

This being the case, it seems strange that during the ears since the end of the war of 1914-18 there has been so ittle change in the general appearance, and so little im-rovement in the aerodynamic efficiency of the average aero-lane, despite the enormous amount of research and xperiment carried on during these years.

In this country, at any rate, there has been relatively little hange in the outward appearance of aeroplanes. The braced iplane, with its assortment of exposed struts and wires, is till the dominant type of aeroplane. In certain other ountries it is true there is a marked tendency to produce ionoplanes, either of the strut-braced or the cantilever type, hich to all outward seeming must be aerodynamically cleaner " than the biplane.

Yet the fact remains that these "cleaner" monoplanes do ot show any outstanding superiority in performance in ither civil or military service over biplanes designed for milar purposes. Moreover, there are cases on record of ionoplanes produced by designers of unquestioned skill and xperience which have failed dismally even to equal the erformance of existing biplane types.

What has here been said as to the apparent failure of the ionoplane is not to be regarded as in any way a condemna-on of that type or an assertion that the apparent "clean-ess" possible in the monoplane is merely illusory. It ould be nearer the truth to say that it is the cleanness one of the more successful of the monoplane type that lows them to compete with biplanes for certain services.

Although "cleanness" in this aerodynamic sense is ob-ously a quality of great importance in aeroplanes of all pes, and although an appearance of cleanness is not very fficult to secure, it is very far from the truth to imagine at apparent and real cleanness are the same thing, or at the latter quality is easily secured in any aeroplane hich has to be equipped for a definite military or commer-al service.

Moreover, it has not yet been sufficiently recognised in rtain circles that cleanness in the aerodynamic sense may of relatively small practical value under certain conditions operation.

Cleanness may be expressed in terms of the ratio of lift drag, and the higher this ratio—or cleaner the machine—e less power is needed to propel a given total weight of roplane at a given speed. Assuming that the attainment cleanness does not require excessive structure weight, e clean machine will carry a given useful load for an ual consumption of fuel either farther at the same speed sing a smaller and cheaper engine) or both farther and ster with the same engine.

leanness attained by adopting monoplane construction, wever, does usually lead to increase in structure weight, nsequently to a reduced pay load, and hence the advantage the better lift/drag ratio is necessarily reduced.

But aeroplanes have to take off the ground and climb to eir operating height, and for practical purposes a short e-off run and a rapid initial climb are essential qualities, en more important than a high economy at operating eed.

Take-off is largely a matter of acceleration, and in its rlier stages is far more affected by the weight/power ratio the machine than by its aerodynamic resistance. Thus, hough halving the resistance of a given machine in flight uld halve the power required for level flight at operating speed, that power could not in practice be halved, because the machine would then require an excessive run to take-off —possibly would not take-off at all.

Very similar is the question of climb. Work has to be done to raise any weight, and the aeroplane unfortunately has to be classed as a weight. For a climb rate of 550 ft. per minute one horse-power in the form of delivered thrust is required for every 60 lbs. of weight of the complete aeroplane. Assuming an airscrew efficiency at climbing speed of 60%—which is a generous estimate for most cases—an aeroplane with no resistance could only carry a total of 36 lbs. per h.p. if it has to climb at this quite moderate speed.

Looking at this question of climb from the practical point of view, consider an imaginary aeroplane which will climb 550 ft. per minute at 70 m.p.h. and which has an L/D ratio of 8/1 at that speed. For every 60 lbs. weight 1 h.p. is expended in climbing. The aerodynamic drag of each 60 lbs. is 7.5 lbs., which at 70 m.p.h. requires 1.08 thrust h.p., giving a total of 2.08 t.h.p., or at 60% airscrew efficiency about 3.5 b.h.p. for each 60 lbs., or 1 b.h.p. for 17.3 lbs. of machine.

Assume that by redesigning the machine the L/D ratio at 70 m.p.h. can be increased to 16—that is that the drag can be halved. Now only 0.54 thrust h.p. is needed for each 60 lbs. to overcome air resistance at 70 m.p.h., but 1 h.p. per 60 lbs. is still necessary for the climb. Total thrust h.p. becomes 1.54 and the b.h.p. at 60% airscrew efficiency is 2.57, or 1 b.h.p. for 23.2 lbs.

Thus if the assumed climb of 550 ft. per minute is to be maintained, even halving the resistance of the machine will only allow the total h.p. installed to be reduced by 26%. Such a reduction would notably increase the take-off run of the machine, and in practice this might place a still further limitation on the minimum permissible power.

The machine with the halved resistance would—assuming that the resistance was halved at top as well as at climbing speed—have a top speed of about 14% greater than that of the original machine with 76% of the original h.p., and about 26% greater with the original power, assuming the total weight to remain unaltered.

From this it is obvious that the effect of reducing drag on practical performance as usually measured is almost disappointingly small, and that where take-off and initial climb are of great importance a very large improvement in cleanness will not permit anything like a corresponding reduction in the power installed.

When cleanness involves any serious increase in structure weight, and a consequent reduction in the proportion of paying load to gross weight—as is the case with the cantilever monoplane compared to the braced biplane—the practical benefit expressed in terms of paying load which can be carried per h.p. is still further reduced.

The clear and unmitigated advantage given by improved cleanness is that of being able to maintain any given cruising speed for a reduced expenditure of power. This fact makes for economy of fuel consumption, and by reducing the weight of fuel which must be carried for a given trip tends to compensate for any increase in structure weight.

But, because engine power has to be fixed to give the required climb, the cleaner the machine the farther is the machine's speed of maximum L/D from the speed corresponding to the engine's most economical regime. As a result the cleaner the aeroplane the less economical is its engine at the best overall cruising speed of the engine and aeroplane combined. In other words, the potential aerodynamic advantages of cleanness are in part cancelled by the necessity of fitting an engine big enough for climbing purposes.

The practical advantage of such saving in fuel consumption as is made possible by cleanness, as well as that of the increase in speed for equal power loading, is obviously of increasing importance as the length of stage over which the aeroplane has to fly is increased.

In present-day commercial aviation the stages are so short that, relatively, little is gained from either cause, particularly when, as is usually the case, the capacity for taking off and climbing from relatively small aerodromes is of primary importance.

One characteristic of improved cleanness of considerable importance deserves more attention than has yet been given to it. In the supposititious machine with an L/D of 8 and a climb of 550 ft. per minute at 70 m.p.h. it will be noticed that rather more than half the total thrust h.p. is needed for level flight. Thus this machine could not fly at 70 m.p.h. with only half its full engine power.

The machine which has been cleaned up to have half the drag of the original however requires only a little over one-third of the total h.p. for level flight at that speed.

Thus, when total power installed is dictated by considerations of minimum climb, the cleaner the machine the greater is the probability—if the machine has more than one engine—that it will be able to fly with one engine out of commission.

Consideration of the effect of cleanness on practical performance thus shows that a very great difference in cleanness is necessary to make any vast difference to the commercial efficiency of an aeroplane under normal operating conditions. This in itself goes some long way to explain why obviously dirty aeroplanes can still manage to compete on fairly level terms with machines which look to be, and possibly are, far superior to them in the matter of resistance.

There is, however, a good deal more in this problem of cleanness than the fundamental fact that decreasing resistance will not in practice permit a corresponding decrease in power for the achievement of an equally useful performance.

The problems of attaining cleanness in fact are very much less simple than a mere matter of making the complete aeroplane look clean. A recent paper by Mr. J. D. North* gives in a series of appendices a number of examples of how the total resistance of an aeroplane may be altered in a very large degree by very minor changes of form or arrangement.

One most striking instance is shown by the effect of bracing struts attached to a monoplane wing. These struts entered the wing cleanly—all fittings were buried in the wing and the wing surface made good. Yet the resistance of strut and wing combined was much more than the sum of their separate resistances. This additional "interference" drag, with struts at 30° to the span, varies from the equivalent of nearly 5 ft. of strut at no lift up to nearly 10 ft. of strut at $K_L = .431$. As the strut angle becomes more acute the interference drag increases rapidly, and at 10° between strut and span the interference drag is equal the drag of over 20 ft. of strut, and this drag is accon panied by a serious loss of lift.

In another case the interference of two engine nacelles c the bottom wing of a biplane led to a loss of over 10% the total lift of the wings at $K_L = .3$ to .4, which loss of li was accompanied by a serious interference drag.

From an analysis of the total resistance—other than th induced drag of the wings—for three machines given in th paper it may be deduced that the total interference dra in each case is roughly equal to the total drag of the bod of each machine—being rather less for a single-engined machine where the body is in the slip-stream and rather mo in the other cases where the body is out of the slip-strean and this is true of machines in which careful model tes have been made to discover and to remove losses of th type.

It may be said that obviously this is one of the case where the clean cantilever monoplane should score heavil over the braced biplane, because there are fewer componen to cause mutual interference. But this is not quite tru It only looks as though it should be true, and such evidenc as is available suggests that monoplanes are generally mo liable to really serious interference troubles than is th average normal biplane.

For so long as the designer sticks to the usual type biplane he is not likely to find that his performance calcul tions lead him very far astray. His maximum speed wi not be very far wrong if he has used reasonable care in h computations. His climb—unless he has made a correctio based on past experience—will rarely be as good as figur suggest it should be, and his ceiling and speed at heigh are always liable to prove disappointing.

But once one begins to play about with monoplanes th most disconcerting things may happen. The mere fact tha some monoplanes are remarkably good, while others hav proved such disastrous failures, is in itself a reason for b lieving that this type of aeroplane, developed by such pain taking detailed experimental methods as those adopted Mr. North in the case particularly of multi-engined biplane may ultimately prove to have all the virtues which its adv cates claim for it.

Mr. North's paper—together with the note entitled "Th Importance of 'Stream-lining' in Relation to Performance, by Prof. B. M. Jones, recently published by the the Aer nautical Research Committee—are welcome signs that th very ample room which does exist for producing clean aeroplanes has not been entirely overlooked in this countr

Nevertheless, one may hope that a good deal more atte tion may be given to the problems of avoiding unnecessar resistance in the future now that the magnitude of th losses due to such a cause have been authoritatively set ou

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* *The Technical Development of the Aeroplane. By J. D. North. Paper read before the Royal Aeronautical Society, Oct.* 4, 1928.

A NEW LAMP FOR AIRCRAFT.

One of the minor problems of aviation which have hitherto remained unsolved is that of providing night-flying aeroplanes with some lighting apparatus capable of brilliantly illuminating objects on the ground, from a respectable distance. Something which would serve for the aeroplane much the same functions as do headlamps for a motor-car would have innumerable uses for night-flying.

A lamp giving a respectable beam capable of illuminating the ground below and ahead from a distance of two or three thousand feet would obviously be valuable both for identifying objects on the ground and for the purpose of landing at night on unilluminated fields. Both for the civil night flying of the future and for military purposes a really effective aeroplane headlight should have immense value.

Up to the present the only practicable method of illuminating the ground from an aeroplane has been by the use of magnesium flares, either of the fixed wing-tip or of the dropped parachute variety. Such flares have many disadvantages. They provide only a transient illumination, and that illumination is a diffuse and uncontrolled one. Only a limited number of such flares can be carried, consequently nothing in the nature of continuous observation over a long night journey is possible by their aid.

The difficulty of providing a satisfactory illuminant of the continuously available head-lamp or searchlight type has lain in the absence of any satisfactory source of light. For aircraft work a beam far more intense than that of any motor-car headlamp is necessary because the range over which a powerful light is needed to be of any use to an aeroplane is very much greater than will suffice in the case of a motor-car.

Electric lamps of the gas-filled metal-filament type sufficiently powerful for this purpose are available, and no serious difficulty is to be encountered in providing an aeroplane with a source of electricity adequate to supply such lamps.

Unfortunately it has hitherto always been found necessar to use a glass bulb enclosing the filament of such lamps a size which increases very rapidly with the power of th lamp. To obtain a satisfactory beam the lamp filament mu be accurately set at the focal point of the reflector used, ar a lamp with a large diameter bulb could therefore only be us satisfactorily with a long-focus, and therefore large, reflecto Any reasonably powerful headlamp using such lamps becan too large and too heavy to use on an aeroplane.

This difficulty has now, it is claimed, been overcome by very ingenious type of incandescent electric lamp evolved Phillips Lamps Ltd. In this the form of the bulb is suc that the filament of even a 1,000 watt (roughly 2,000 cand power) lamp can be focussed in a reflector of motor-car hea lamp size, and will then give a beam which has an effecti range of several thousand feet.

The problem which had to be solved in the production this new type of lamp was that of keeping the glass of th bulb cool. While the filament of such a lamp is hot minu particles of the filament—the ions which account for th working of the familiar wireless valve—are thrown off ar eventually collect on the relatively cool glass of the bulb. is this which causes "blackening" of electric lamps wi age. This "blackening" absorbs a considerable amount the radiation from the filament and the radiation so a sorbed heats up the glass. A small bulb blackens mo quickly than a large one, therefore absorbs more rad tion per unit of area, and therefore grows hotter.

A filament of the power of the new Phillips lamp in a bu of the size usual in motor-car lamps would cause fusion the glass in a very short time. But to obtain the desir results it was necessary to use such a filament in a bu of a diameter not much larger than that of a motor-car hea lamp bulb.

The Phillips Aviation lamp is shown in a figure attache

'The GIPSY MOTH

is teaching the World to fly

Guaranteed superior all-round performance to that of any machine of the same class in the world.

THE DE HAVILLAND AIRCRAFT COMPANY, LTD.,
STAG LANE AERODROME — EDGWARE — MIDDX.

DH MOTH

PRICE
£650
READY
TO FLY
AWAY

It will be seen that the bulb consists of a fairly large spherical portion with a long small-diameter neck projecting from it. The filament is carried towards the end of this neck. The lamp must be used in a vertical or nearly vertical position, filament downwards.

When so used the gases in the part of the bulb surrounding the filament are raised to a high temperature, whereas those in the spherical part of the bulb remain cool. The heated gas at the bottom of the lamp thereupon rises towards the upper section, being replaced by cool gas from above, and a steady circulation, shown by the arrows, is set up. The ions from the filament are carried up the neck by the hot gas current, and are deposited on the glass only on the relatively cool upper part of the lamp.

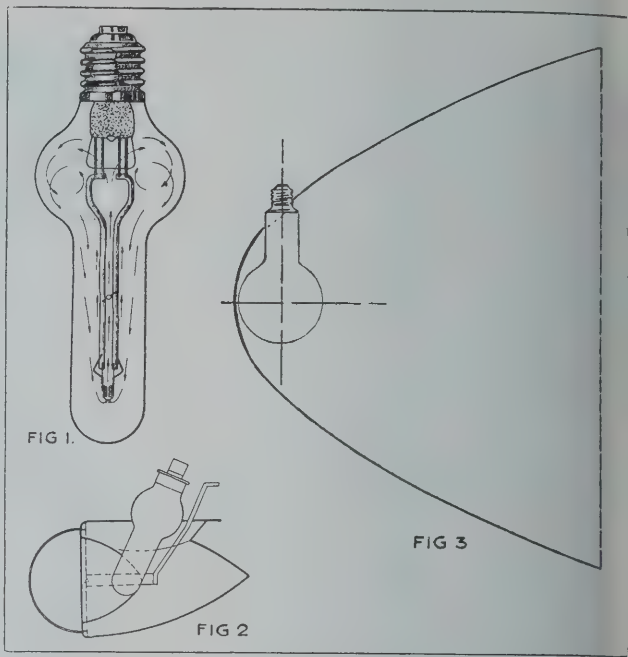
The glass near the hot filament remains clear and unblackened, and consequently does not absorb radiation or heat up to any dangerous extent.

In use with a parabolic mirror, a hole has to be cut in the mirror through which the neck of the lamp may be inserted to bring the filament to the correct focal position.

The general scheme of such an aircraft headlamp is also shown in a figure, with, alongside it and to the same scale, the mirror which would be required for a normal shaped lamp of power equal to that of the Phillips lamp. The advantage of the latter is obvious.

Tests made with a projector concocted from a motor-car head-lamp mirror and a 1,000-watt Phillips lamp on a Fokker F.VII-3M at the Soesterberg aerodrome of the Royal Dutch Air Force, showed that such a light would, from a height of 300 metres (984 ft.) effectively illuminate objects on the ground about 1 km. (1,100 yards) ahead, and would provide adequate light for landing at night without any ground lighting at all.

The total weight of the equipment used in these experiments, including wind-driven dynamo, switches, wiring, controls for elevating and traversing the beam and the complete lantern itself was 23 kg. (50 lbs.). Of this the dynamo accounted for 16.5 kg. (36.3 lbs.). The dynamo was of greater capacity than needed for the headlamp alone, and could easily have supplied in addition all necessary navigation and cabin lights, and therefore allowing for the weight of dynamo that would normally be required for such purposes, the increased weight of the head-lamp equipment would be only from 13 to 17 kg. (28 to 38 lbs.). Probably even this figure may be bettered by improved detail design.



THE PHILLIPS AIRCRAFT LAMP.—Fig. 1 shows the way this lamp is kept cool. Fig. 2 is a complete aeroplane headlamp with a Phillips bulb, and Fig. 3 shows to the same scale the size of mirror which would be needed for an ordinary bulb of equal power.

NEW AIRCRAFT.

The Cierva Type C.17 Autogiro.

This machine, which made its first trial flight on Oct. 23, is of the now well-known Autogiro type, designed to serve the same purposes as the popular two-seater type of light aeroplane. It is to all intents and purposes an Avro Avian bereft of wings, fitted with a four-bladed Autogiro windmill, an undercarriage of widened track, and a small lower wing carrying ailerons. All structural components other than the windmill and its supports, and this lower wing are of standard Avian design and construction, except for a slight enlargement of the fin and rudder.

A Cirrus Mk. II engine is fitted, driving a normal Avian airscrew.

Specification of the C.17 Autogiro.

Dimensions.—Diameter of Windmill 33 ft. 3¼ in. (10.43 m.), Length overall 28 ft. 9 in. (8.77 m.), Height, Tail up, 11 ft. 1 in. (3.37 m.), Tail down, 10 ft. 0 in. (3.05 m.), Span of auxiliary wing 19 ft. 9 in. (6.02 m.), Track of undercarriage 8 ft. 7½ in. (2.63 m.).

Weights and Loadings.—Weight empty 970 lbs. (442 kg.), Fuel (17 galls. = 77 litres) 130 lbs. (59 kg.), Crew 340 lbs. (155 kg.), Total 1,455 lbs. (662 kg.), Wt. per h.p. 18.2 lbs./h.p. (8.3 kg./h.p.).

Performance.—Maximum speed 90 m.p.h. (145 km.h.), Minimum speed 25 m.p.h. (40 km.h.), Range at 70 m.p.h. (113 km.h.) 3 hours, 210 miles (230 km.).

The Handley Page Hinaidi.

Made by Handley Page Ltd., Cricklewood, London, N.W.

Type.—Twin engine long-range bomber. A development of the well known W.10 type.

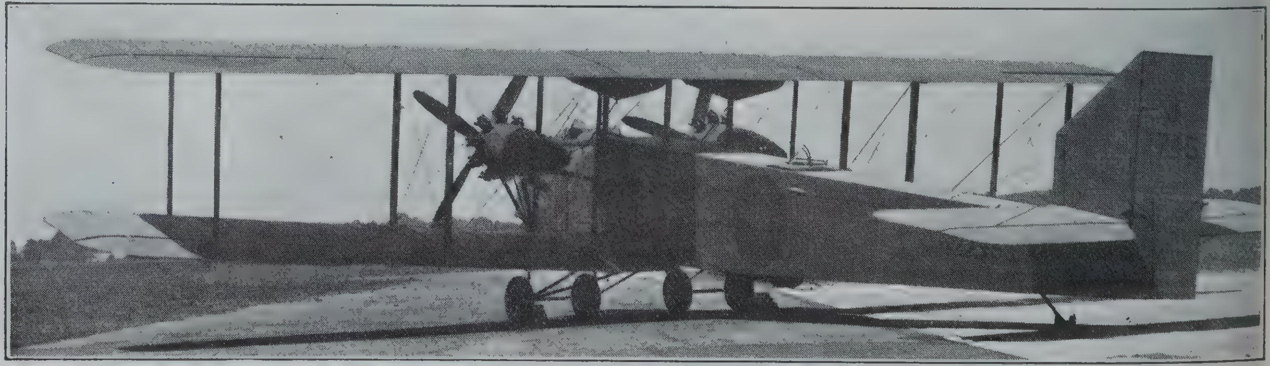
Wings.—Unstaggered, equal-winged braced biplane, with a dihedra on bottom wing only. The upper wing is in three sections, and th lower wing in two sections plus a pair of wing roots built int the fuselage. There are three rows of struts per side, of whic the inner pair on each side support engine mounts. Ailerons whos trailing edge projects beyond that of the fixed trailing edge ar fitted top and bottom and are balanced on inset hinges. Eithe all-metal wing-frames or the normal timber plus steel fitting typ can be supplied.

Fuselage.—Rectangular section, built on four longerons, strut and wir braced of normal timber construction. Alternatively all-stee fuselages can be supplied.

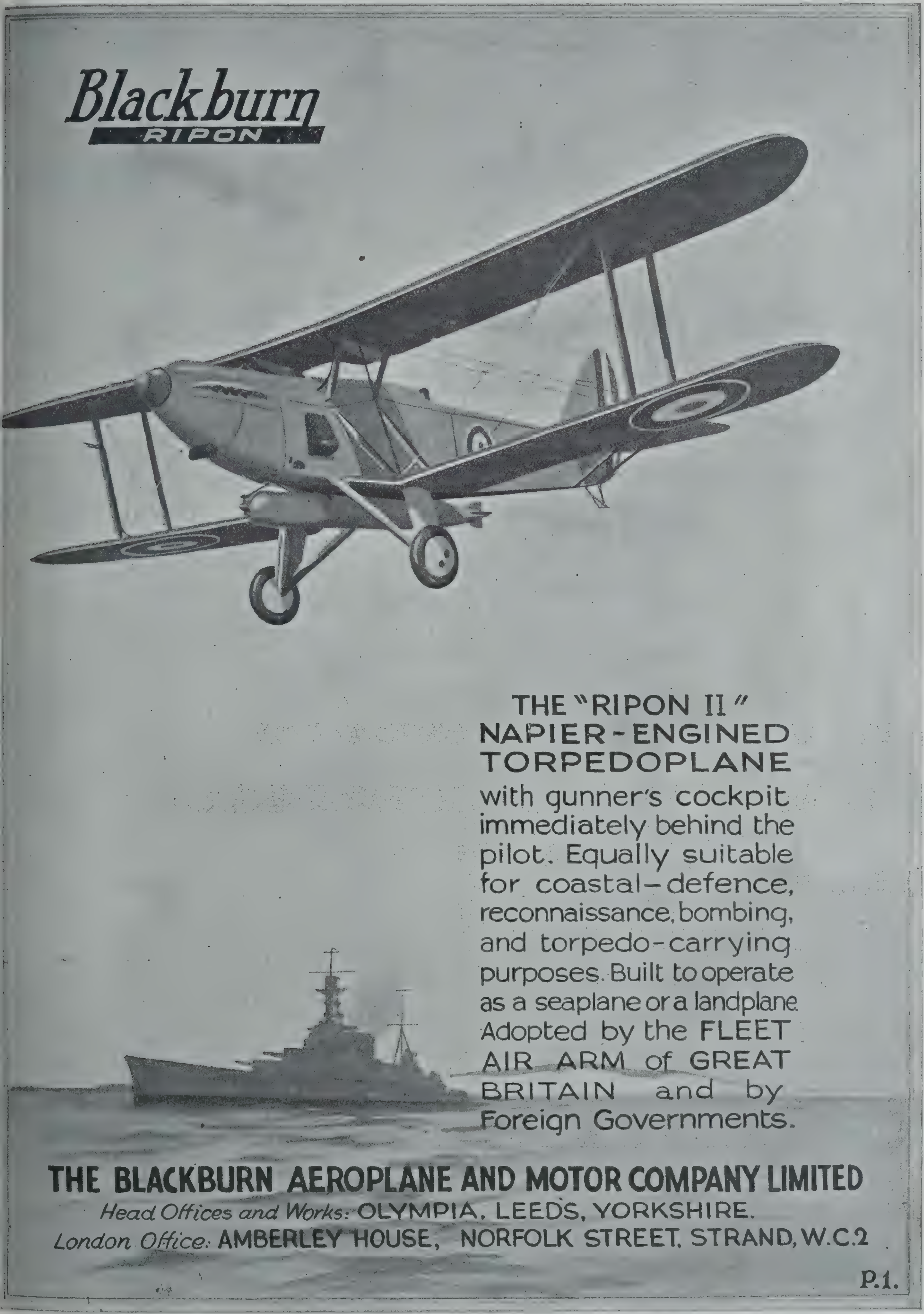
Tail Unit.—Normal monoplane type with wire bracing above and belo tail plane. Tail plane adjustable in flight. No tail surface balanced. Normal timber or all-metal construction as required.

Undercarriage.—Two independent two-wheeled undercarriages ar fitted one on each side. The axle of each is supported at ends b telescopic legs, one to below engine mount and one to side o fuselage, in line with front wing spar. A pair of thrust rods hinged on the line of the rear spar, interconnected by a diagona strut, complete the structure. Rubber in compression plus ole dampers are used as shock-absorbers.

Power Plant.—Two Bristol Jupiter VIII engines, 485 h.p. each, i streamline nacelles are overhung on the outer sides of the inne



The Handley Page Hinaidi Bomber (two geared Bristol Jupiter VIII engines).



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RIPON

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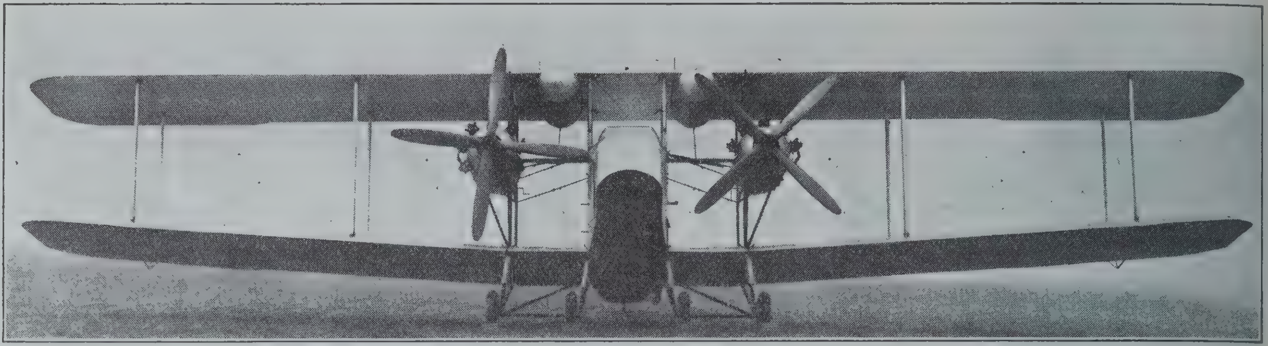
P.1.



The Handley Page Clive Troop-Carrier (two Bristol Jupiter VIII engines).

pairs of interplane struts and braced by steel tubes to the lower wing. Two fuel tanks in upper centre section feed either or each engine by gravity. Four-bladed tractor airscrews are driven at half engine speed.

Accommodation.—A front gunner bomber is in a cockpit in nose of fuselage. Behind and raised high above this cockpit is another for two pilots side by side. A rear gunner's cockpit well behind wings has also a prone bombing position. Stowage for bombs is provided in the fuselage, and alternatively bombs may be slung below wings.

Dimensions.—Span 75 ft. 0 in. (22.85 m.), Length 59 ft. 2 in. (18.02 m.), Height over all 17 ft. (5.17 m.), Approximate wing area 1,480 sq. ft. (137 sq. m.).

Weights and Loadings.—No data available.

Performance.—Max. speed 120 m.p.h. (193 km.h.), Range 1,000 miles (1,600 km.).

The Handley Page Clive.

Made by Handley Page Ltd., Cricklewood, London, N.W.

Type.—Twin engine troop-carrier for the R.A.F.

General Description.—Wings, undercarriage, tail unit and power plant as Handley Page Hinaidi already described. Normal timber frame with steel fittings.

Fuselage.—Rectangular section, considerably deeper than that of Hinaidi.

Accommodation.—Side-by-side dual control open cockpit in nose of body. Behind is a large cabin extending well behind wings to accommodate some 20 infantrymen with arms and accoutrement.

Dimensions.—As Hinaidi.

Weights and Loadings.—No data available.

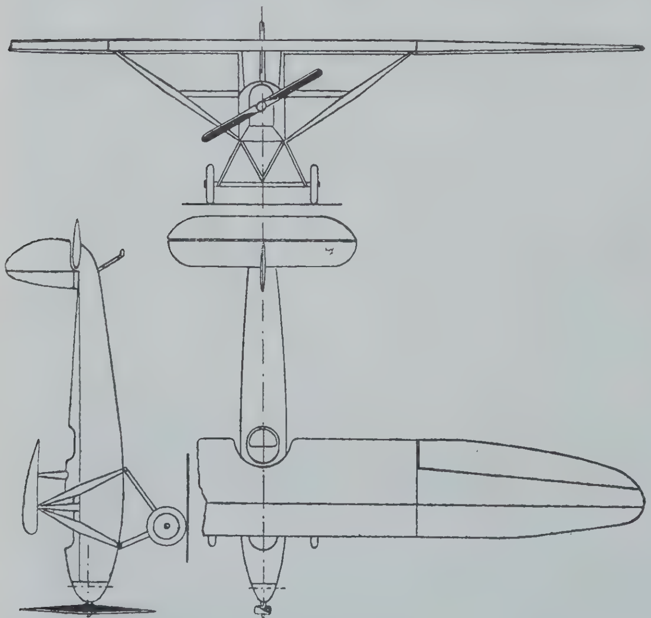
Performance.—Maximum speed 110 m.p.h. (176 km.h.), Range 1,400 miles (2,025 km.).

The "Hamburg M.1."

Designed by Ing. H. Wagener, of unknown German address.

Type.—Two-seater light aeroplane.

Wings.—Broad high-wing monoplane. Wing in three sections, the central one supported on four vertical struts and by inverted Vee struts from top of undercarriage legs to front spars only. Outer sections entirely overhung and tapered considerably to tip. Timber frame, fabric covered, with three-ply on leading edge. Large unbalanced ailerons.



Fuselage.—Rectangular section, domed top deck. Timber framing.

Tail Unit.—Normal monoplane type with fin of very high aspect ratio. No external bracing. Control surfaces not balanced.

Undercarriage.—Vee type with hinged axle attached to inverted Vee below body. Rubber springing.

Power Plant.—60 h.p. air-cooled Walter radial driving tractor airscrew.

Accommodation.—Tandem open cockpits, one below leading edge, one behind trailing edge of centre section.

Dimensions.—Span 12.0 m. (39 ft. 5 in.), Length 6.25 m. (20 ft. 6 in.), Wing area 15.0 sq. m. (161 sq. ft.).

Weights and Loadings.—Weight empty 360 kg. (792 lbs.), loaded 610 kg. (1,342 lbs.), Wing loading 40.6 kg./sq. m. (8.35 lbs./sq. ft.), Power loading 10.1 kg./h.p. (22.2 lbs./h.p.).

Performance.—No data available.

The Raab-Katzenstein R.K.25.

Made by The Raab-Katzenstein Flugzeugwerke G.m.b.H., Kassel.

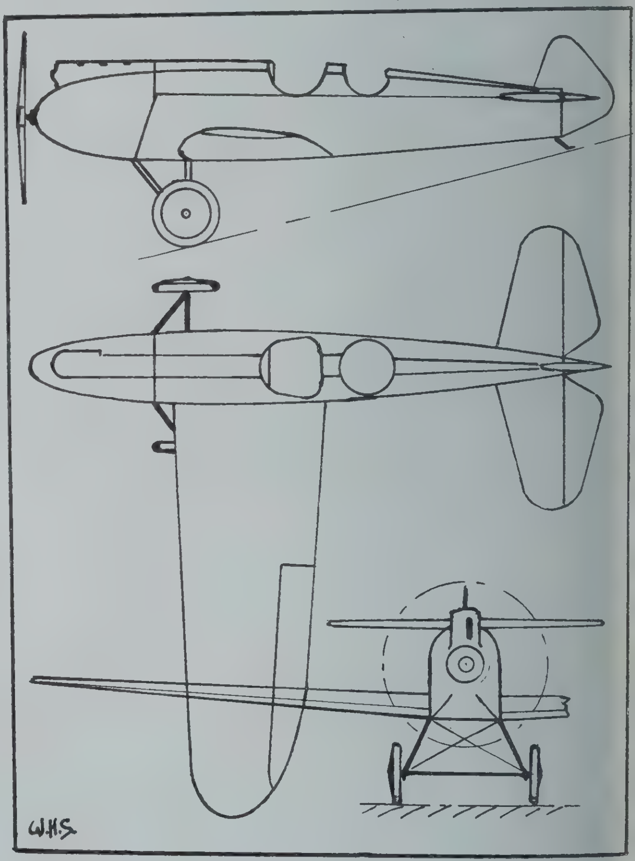
Type.—Two-seater light aeroplane.

Wings.—Low-wing cantilever monoplane. Timber spars, three-ply and fabric covered. Unbalanced ailerons.

Fuselage.—Rectangular section with domed top. Steel tube framing.

Tail Unit.—Balanced rudder with no fin, normal tail plane and unbalanced elevators. No external bracing.

Undercarriage.—Normal cross-axle type.



Power Plant.—A.D.C. Cirrus Mk. II engine, 80 h.p., very well streamlined by cowling. Tanks for 300 litres = 66 galls. fuel.

Dimensions.—Span 9.30 m. (30 ft. 6 in.), Length 6.48 m. (21 ft. 3 in.) Height 2.18 m. (7 ft. 2 in.), Wing area 13.0 sq. m. (140 sq. ft.)

Weights and Loadings.—Weight empty 295 kg. (650 lbs.), Fully loade 700 kg. (1,540 lbs.), Wing loading 53.8 kg./sq. m. (11 lbs./sq. ft.) Power loading 8.75 kg./h.p. (19.25 lbs./h.p.).

Performance.—Maximum speed (full load) 203 km.h. (127 m.p.h.), Clim to 1,000 m. (3,280 ft.) 6 minutes, Range 2,400 km. (1,425 miles) Ceiling 3,500 m. (11,500 ft.).

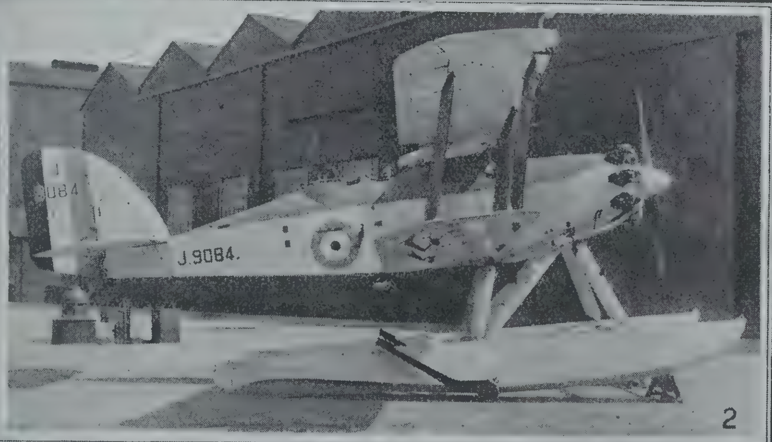
The Rohrbach "Romar."

Built by Rohrbach Metall Flugzeugbau G.m.b.H., Berlin.

Type.—Long range passenger carrying flying-boat.

Wings.—Cantilever monoplane with very marked dihedral angl attached directly to top of main hull. Built entirely of duralumi except for steel bolts and fittings. Normal Rohrbach construction one large central box girder whose upper and lower members confor to aerofoil section, with detachable leading and trailing edge section

WESTLAND



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(Photos Nos. 1 & 2).

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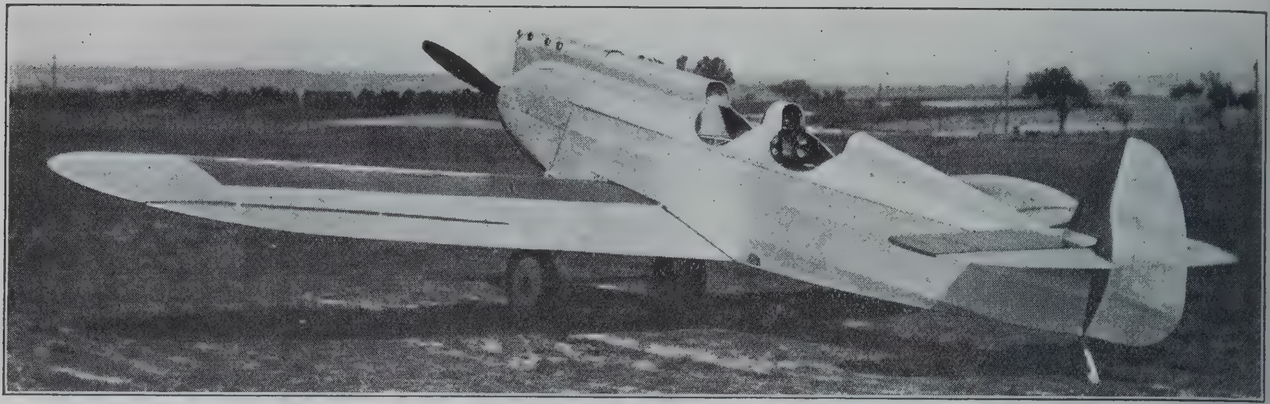


The Raab-Katzenstein R.K.25 monoplane (Cirrus Mk. II engine).

bolted to main box. The outer surface is of uncorrugated sheet metal. Wings taper in chord and thickness to tips. The wing structure is, it is claimed, watertight.

Hull.—Of slab-sided and nearly flat-decked type, with a straight, nearly vertical, stem. There is a steep Vee to the bottom as far as the step and thereafter the bottom flattens. The hull is built on transverse bulkheads, tied together by a through-going keel and a number of other longitudinals and covered with plain duralumin sheeting.

Tail Unit.—Normal monoplane type. The tail plane is carried high above the hull on the fin structure and is strut braced. The tail plane and fin structure resembles that of wings in having single main box-girders as their chief members.

Alighting Gear.—In addition to the hull, two auxiliary floats are carried from the wings below the outboard engines. These floats provide some part of the normal buoyancy for the machine at rest and serve also as auxiliary dynamic supports when hydroplaning. Construction is on similar lines to the main hull.

Power Plant.—Three B.M.W.VI engines (500-720 h.p. each) are mounted in nacelles supported high above the wing by steel tube struts and drive four-bladed pusher airscrews. Nose radiators are fitted to each nacelle. Fuel tanks (7,900 litres = 1,740 galls. total) are in the wings and fuel is supplied to carburettors by engine-driven pumps. All fuel pipe lines, valves and the like are accessible to the mechanic (via passage ways in the wings) during flight. A Bristol gas-starter is fitted.

Accommodation.—Behind a collision bulkhead in the bows is a wireless compartment and navigation room with two seats, chart-table, etc. Aft of this is the pilot's cockpit, totally enclosed with a glass roof and front and side windows, followed by the engineer's compartment containing the gas-starter and all necessary engine instruments, fuel controls, etc. Then follows the cabin, which is in two compartments, one with seats for four and one with seats for eight passengers. Between the two compartments is a lavatory. Communication from all cockpits and cabin to a main hatchway behind the wing and to the luggage compartment is fitted with watertight doors.

Dimensions.—Span 36.9 m. (121 ft.), Length 22.0 m. (72 ft. 6 in.), Height 8.5 m. (27 ft. 10 in.), Draught of water at normal load 1.3 m. (4 ft. 4 in.), Wing area 170 sq. m. (1,820 sq. ft.).

Weights and Loadings.—Normal full load 19,000 kg. (41,800 lbs.), Approximate disposable load, Crew of 4, 300 kg. (660 lbs.), 12 passengers and luggage 900 kg. (1,980 lbs.), Fuel 6,000 kg. (13,200 lbs.), Oil 400 kg. (880 lbs.), Total disposable load 7,600 kg. (16,720 lbs.), Wing loading 112 kg./sq. m. (23.5 lbs./sq. ft.), Power loading (2,160 max. h.p.) 8.8 kg./h.p. (19.6 lbs./h.p.).

Performance.—Maximum speed 208 km.h. (129 m.p.h.), Range, estimated, 4,000 km. (2,480 miles).

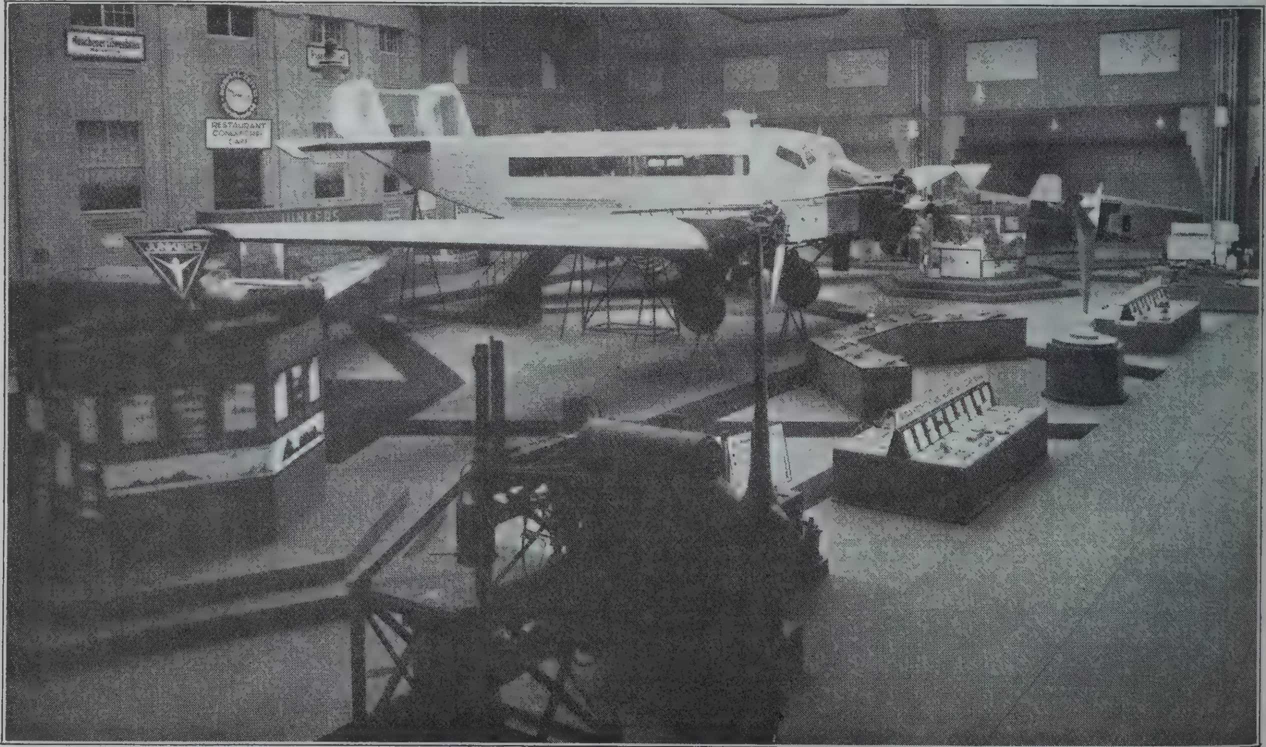
Note.—Figures for disposable load are estimated from particulars of crew, passenger and fuel capacity and are not official. According to the latest reports the machine has recently flown at 18,600 kg. total weight, taking off in 90 seconds. Some modifications in the control system were made previous to this test, and the machine has yet to be passed as airworthy by the D.V.L.

NEW ENGINES.

The Supercharged Junkers L.55.

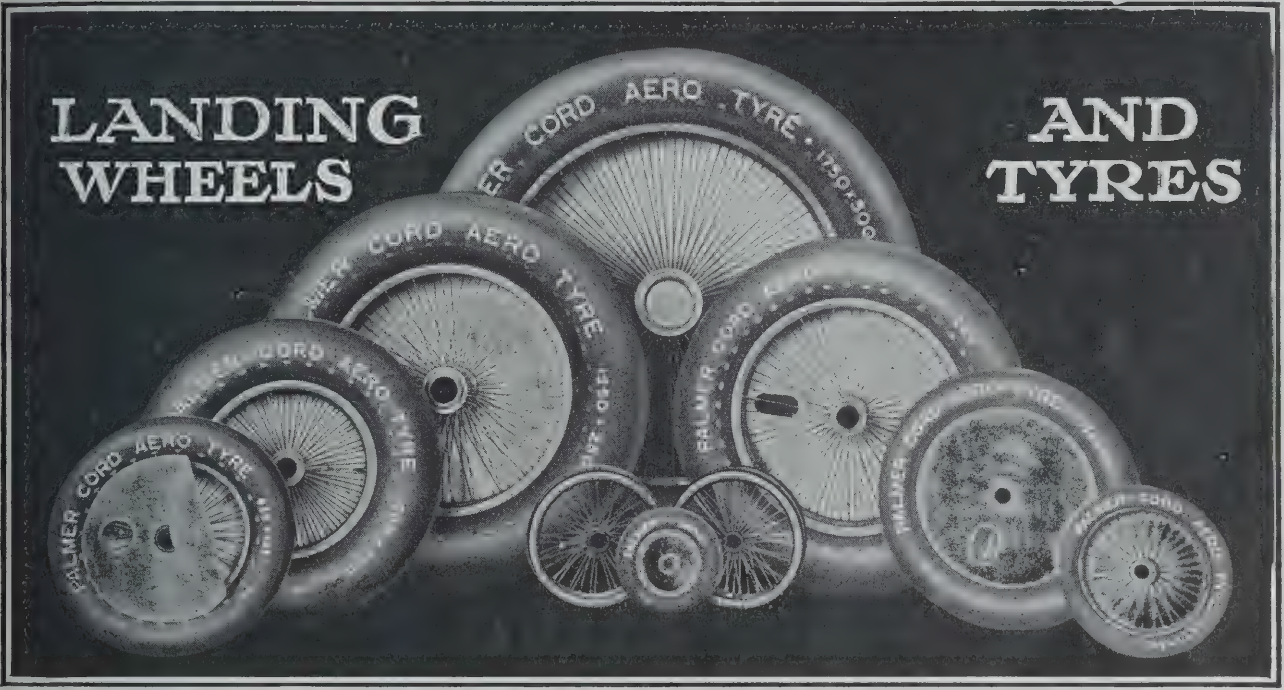
This is the normal L.55 twelve-cylinder engine fitted with a gear-driven compressor, mounted at the rear end. From the photographs published it appears that this compressor is of the multi-stage type. The compressor rotor is driven at between 6 and 7 times crankshaft speed through plain spur gears and a hydraulic coupling or clutch.

No details of this clutch are available, but it is claimed that it serves not only to engage or disengage the supercharger, but to insulate the gears and the rotor from shocks



The Junkers stand at the Berlin Exhibition. The dark mass in the foreground is the experimental Junkers compression-ignition engine. In the background the Junkers G-31 (three Bristol Jupiter engines).

PALMER



STANDARD SIZES.

Tyre Size	Wheel No.	Hub Length	Hub Bore	Track Line
		m/m	m/m	m/m
375×55	168	111.12	25.4	Central
300×60	16	111.12	25.4	Central
450×60	30	89.	31.75	Central
,,	172	130.	38.09	Central
575×60	21	160.	28.	Central
,,	180	150.	38.09	104/46
,,	186	120.	34.92	Central
,,	90	150.	38.09	Central
650×65	78	178.	44.45	132/46
,,	79	178.	44.45	Central
,,	100	178.	38.09	132/46
,,	101	178.	31.75	132/46
800×75	21	160.	28.	Central
,,	180	150.	38.09	104/46
,,	186	120.	34.92	Central
,,	190	150.	38.09	Central
700×75	78	178.	44.45	132/46
,,	79	178.	44.45	Central
,,	100	178.	38 09	132/46
,,	101	178.	31.75	132/46
700×100	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	99	178.	38.89	132 46
700×100	112	150.	38.09	Central
,,	176	178.	44.45	Central
,,	179	178.	55.	132/46
650×125	119	178.	55.	132/46
,,	147	178.	55.	Central
,,	188	120.	34.92	Central
750×125	77	178.	44.45	132/46
,,	92	185.	55.	135/50
,,	95	185.	55.	Central
,,	99	178.	38.89	132/46
,,	112	150.	38.09	Central
,,	176	178.	44.45	Central
,,	179	178.	55.	132/46
800×150	161*	185.	55.	135/50
,,	162*	185.	55.	Central
,,	163*	185.	66.67	135/50
,,	169†	185.	55.	135/50
,,	177	185.	55.	135/50
,,	183	185.	55.	Central
,,	211*	185.	60.32	135/50
1000×150	167	185.	55.	125/60
,,	174	250.	80.	Central
,,	182	185.	55.	Central
,,	187	220.	66.67	Central
,,	201	185.	60.32	125 60
1000×150	210	185.	60.32	Central
1000×180	148	220.	80.	Central
,,	149	185.	55.	Central
,,	155	220.	66.67	Central
,,	166	185.	55.	125/60
900×200	107	185.	55.	Central
,,	108	185.	55.	125/60
,,	128	220.	66.67	Central
,,	137	250.	80.	Central
,,	157	185.	80.	Central
,,	202	185.	60.32	Central
1100×220	134	220.	66.67	Central
,,	136	250.	80.	Central
975×225	192	185.	60.32	Central
,,	194	185.	55.	125/60
1250×250	133	250.	80.	Central
,,	154	304.8	101.6	Central
1500×300	115	304.8	101.6	Central
,,	126	304.8	152.4	Central
1750×300	139	400.	152.4	Central
,,	191	350.	150.3	Central
1750×350	193	400.	125.	Central

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due to variations in engine speed, and also to vary the speed of the rotor.

The clutch is under manual control by the pilot and there is in addition an automatic pressure control which will maintain constant sea-level pressure in the induction system.

The supercharger may thus be put into action and left, when it will maintain normal induction pressure from the ground up to some height above 5,000 m. (16,400 ft.). The pilot may also use the supercharger to give a temporary ground-boost for taking-off, or other purposes.

The compressor in this case deals with air alone, and not mixture, that is, the carburetter is between the compressor and the cylinders. A special blow-back valve protects the compressor from the effects of possible cases of firing-back through the carburettor.

The main particulars of this engine are identical with the normal L.55 type. The performance, etc., figures follow :—

The Supercharged Junkers L.55.

Compression Ratio.—5.5 to 1.

Output.—500 h.p. at 1,380 r.p.m., 600 h.p. at 1,460 normal conditions. Maximum temporary output 650 h.p. at 1,500/1,520 r.p.m. Maximum output with ground "boost" for taking off, etc., 700 h.p. Output at 5,000 m. (16,400 ft.) 525 h.p.

Weight Dry.—646 kg. (1,422 lbs.).

The Argus A.S.VI and A.S.VI.A.

Made by The Argus Motoren G.m.b.H., Berlin Reinickendorf.

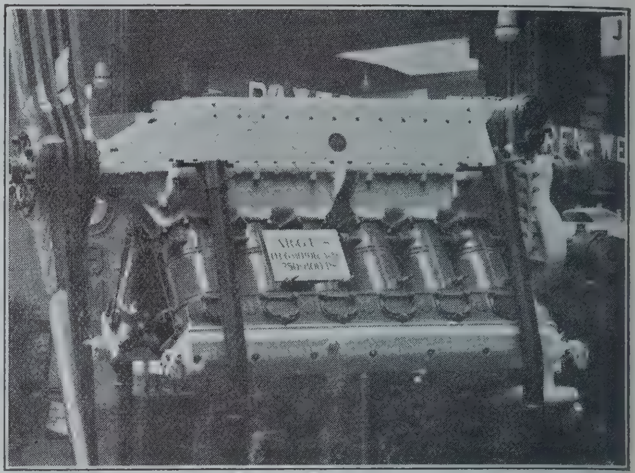
Type.—Twelve cylinder water-cooled Vee type. A.S.VI normal, A.S.VI.A inverted.

Cylinders.—160 m/m. bore x 180 m/m. stroke, 5.7 compression. Steel cylinders and jackets with aluminium heads with two valves per cylinder.

Constructional Details.—None available.

Overall Dimensions.—1.888 m. (6 ft. 2 in.), 0.780 m. (2 ft. 7 in.) wide, 1.140 m. (3 ft. 9 in.) high.

Weight Dry.—(Without airscrew hub) : 530 kg. (1,166 lbs.).



The Argus 12-cyl. inverted V-type engine A.S.VIa of 700 h.p.

Performance.—Maximum output 700 h.p., r.p.m. not given. Fuel consumption 0.22 kg. (.485 lbs.) per h.p. hour.

The Argus Supercharger.

The Argus Motoren Gesellschaft have developed a supercharger of the Roots blower type suitable for use with any engine of from 600 to 800 h.p. designed to maintain normal sea-level induction pressures at heights of up to 6,000 m. (20,000 ft.). The blower is supplied complete with coupling and control gear and is designed to deliver 0.75 kg. (1.65 lbs.) of air per second at a pressure of 380 mm. of mercury running at 1,800 r.p.m. The weight of the complete blower is 45 kg (99 lbs.).

NEW TECHNICAL LITERATURE.

The Aeronautical Research Committee.

Aeronautical Research Committee R. & M. 1125.—"*An Analysis of Some Causes of Discrepancy between the Calculated Failing Load of the Structure of an Aircraft and the Load at which Failure Occurs on Strength Test.*" *By H. B. Howard, B.A., B.Sc., and K. T. Spencer, B.Sc., A.M.I.C.E. Price 6d. net.*

Records of tests to destruction of aircraft and aircraft structural components at the R.A.E. have been compared with the calculated failing loads of the same aircraft or component in order to determine to what extent routine strength calculations are confirmed by the breaking tests. In general the observed failing load is noticeably greater than the calculated load, the differences varying over a very considerable range.

The available records do not permit of any reliable conclusions as to the existence of a definite relation between the calculated and actual failing loads.

The causes of this observed discrepancy are several. In the course of strength testing it is impossible to ensure that at the moment of failure the external loads are applied in exactly the manner desired and hence the distribution of load is not precisely that assumed in calculation.

To simplify calculation redundant members are often assumed to be inoperative. In strength tests these redundant members may greatly modify the stress distribution and relieve the more heavily stressed members. Many other assumptions made for the sake of simplifying calculation are not strictly accurate and will lead to variation between actual and assumed stress distribution.

Lastly, in calculation members are assumed to have failed when a stress sufficiently high to produce permanent set has developed. Moreover this stress is based on minimum strength figures specified for particular materials and the materials themselves are in general appreciably stronger on test than the minimum permissible strength.

The conclusions reached are that there is not at present enough data to establish any definite relation between calculated and tested failing strength, and that the numerical values of load factors used for calculation have no meaning apart from the particular methods of calculation used.

The substitution of strength testing for calculation would require increased numerical values for factors to give equal structural security.

R. & M. 1126.—"*The Distribution of Stress and Strain in the Wöhler Rotating Cantilever Fatigue Test.*" *By W. Mason and N. P. Inglis. Price 1s. 6d. net.*

Solid and hollow specimens of two different wall-thicknesses were tested under conditions giving uniform bending over a parallel length of 1 in. The tests were devised to compare the limiting ranges of solid and hollow bodies, to find the cyclic fibe strains at limiting and other ranges and to estimate the actual fibre stress in the fatigued specimens.

The conclusions reached are that the maximum cyclic fibre strains in Wöhler tests have a linear relation to the bending moments imposed, that the nominal fibre stresses are larger than the real stresses for both hollow and solid specimens, the difference being a maximum for solid specimens and decreasing with wall-thickness in hollow specimens.

R. & M. No. 1129.—"*Heat Transfer in Internal Combustion Engines.*" *By H. Moss. Price 1s. 3d. net.*

Report of tests made on a single cylinder Benz engine driven by an electric motor and supplied with intake air at various temperatures and pressures to determine (a) the influence of gas density on heat transfer under engine conditions of turbulence, and (b) to check the assumptions underlying the method used for the phase setting of engine indicators.

The rate of heat transfer was found to be proportional to the temperature difference between gas and cylinder wall and to the square root of gas density. At about 1,200 r.p.m. it was also proportional to the square root of speed. For extended speed ranges it was proportional to log $(1 + cn)$ where c is a constant and $n = $ r.p.m.

About one half of the total heat losses were conducted from gas to cylinder walls, the remainder being radiated. The increase of temperature gradient due to supercharging is not important and the increase of valve temperatures is small.

The error involved in phase-setting of indicators by use of the motoring curve is less than one quarter degree of crank angle.

R. & M. No. 1130.—"*A High Speed Wind Channel for Tests on Aerofoils.*" *By T. E. Stanton. Price 9d. net.*

Describes modifications to the N.P.L. 3 inch diameter high speed wind channel to fit it for tests on aerofoil models, and gives the result of tests on models of R.A.F.31 and on a biconvex (circular arc) section of two different chords.

The results confirm predictions made on theoretical grounds (R. & M. 1135) that the slope of the lift curve should increase, without change in the angle of no lift up to speeds of 0.6 times the velocity of sound. The limiting speed at which this effect ceases seems to be higher for the circular arc section than for R.A.F.31. In both cases the lift falls rapidly after this limit is reached, and the angle of no lift increases.

R. & M. No. 1131.—"*Lift and Torque of an Autogiro on the Ground.*" *By H. Glauert. Price 4d. net.*

An investigation on theoretical grounds of the torque required and the lift developed by an autogiro on the ground when the vane system is driven by an engine. In the static condition the lift is very small. In a wind of 20 m.p.h. the lift is proportional to tip speed. At constant tip speed lift increases and torque decreases with rise in incidence between 8° and 12°.

R. & M. No. 1132.—"*On the Vertical Ascent of a Helicopter.*" *By H. Glauert. Price 9d. net.*

A general analysis of the performance of a helicopter based on the vortex theory of airscrews.

The conclusions reached are that the solidity ratio of blade area to disc area should be of the order of 0.25, the diameter as large as possible, and that for best rate of climb the blade angle should be adjustable during flight. The permissible disc-loading (total weight ÷ disc area) increases with decreasing power loading, and should not exceed 1.5 lbs./sq. ft. for 15 lbs./h.p. Experimental results from model tests suggests that the values cauculated for thrust by this method will be too high.

R. & M. No. 1133.—"*Full Scale and Model Measurements of the Lift and Drag of the Bristol Fighter with M2 Section Wings.*" *By E. T. Jones and A. S. Hartshorn. Price 6d. net.*

A Bristol Fighter with N.A.C.A. M2 section wings was tested at 1/10 scale in the 7 ft. wind channel and in flight at full scale. The results show an increase in K_L max. from 0.38 model to 0.432 full scale and a decrease in K_D min. from 0.0315 model to 0.028 full scale. These results show a good agreement with the results obtained for

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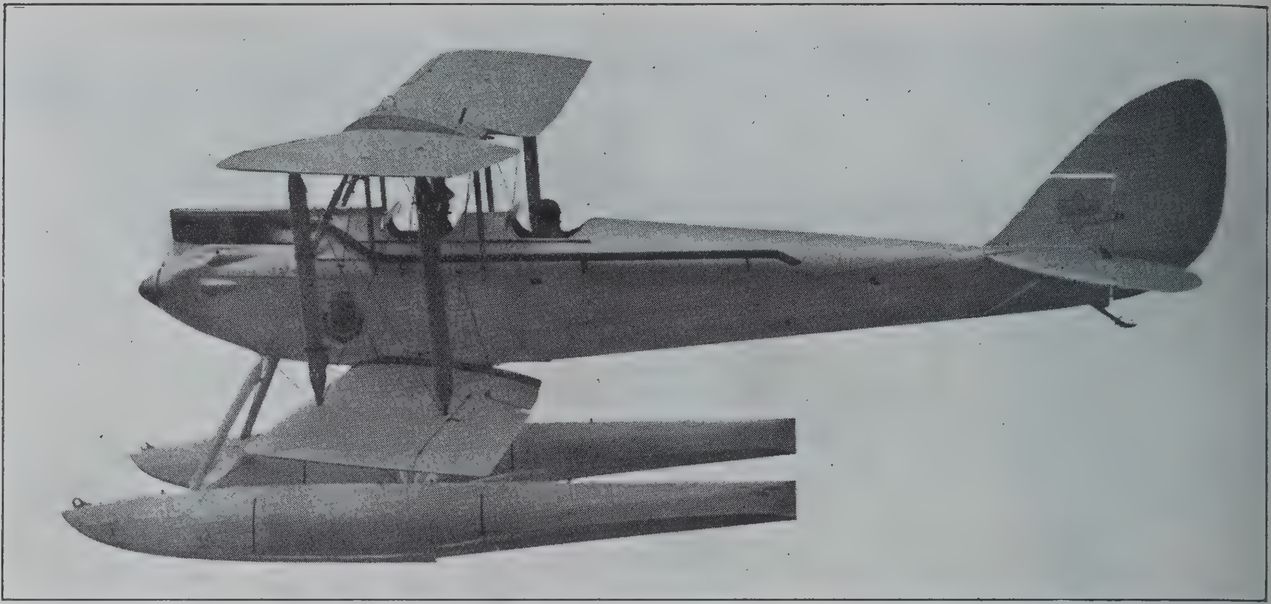


FOR SARAWAK.—A Gipsy-Moth, fitted with Short metal floats, one of a batch ordered by the Sarawak Government, being tested at Rochester by Mr. Hubert Broad.—(*" Aeroplane " photograph.*)

the same section in the N.A.C.A. variable density tunnel, and confirm the value of this apparatus as a method of avoiding scale effect.

R. & M. No. 1134.—*" Wind Tunnel Tests with High Tip Speed Airscrews. The Characteristics of Airscrew Sections R. & M. 322, No. 4, and R.A.F.32." By W. G. A. Perring. Price 6d. net.*

Records results of tests on airscrews with No. 4 and R.A.F. 32 blades, each at two different blade angle settings at tip speeds ranging up to 1.3 times the velocity of sound. Lift and drag coefficients for the sections are deduced from the test results. Both sections pass through a critical stage at about 0.7 times velocity of sound, the lift falling off and the drag increasing greatly. The No. 4 section compares very unfavourably at high speeds with the thinner section of similar type previously tested.

R. & M. No. 1135.—*" The Effect of Compressibility on the Lift of an Aerofoil." By H. Glauert. Price 6d. net.*

A discussion on purely theoretical grounds of the effect of compressibility on the characteristics of aerofoils at high speeds. Theory indicates that the slope of the lift curve should be increased as a result of compressibility by a factor which is a function of the ratio of air speed to the velocity of sound up to air speed equal to velocity of sound. Thereafter the lift should be independent of the shape of the aerofoil, be zero at zero incidence, and the slope of the lift curve should decrease as speed increases.

Experiments on aerofoils at high air speeds confirm these predictions except that the slope of the lift curve ceases to rise above speeds of about 0.7 times speed of sound as the result of a breakdown in flow. The author suggests that symmetrical sections may not show this premature falling off in lift and may be most suitable for high speed airscrews.

R. &. M. No. 1136.—*" The Theory of Pressure Capsules. Part I, General Discussion; Part II, The Complete Flat Disc without Control Spring." By A. A. Griffith. Price 9d. net.*

Reports of an investigation into the theory of the action of pressure capsules directed towards providing data for the design of such instruments. The results so far recorded provide a method for designing the type of capsule which consists of two thin flat discs united at their edges which is valid for deflections up to about 8 times the thickness of the discs.

R. &. M. No. 1137.—*" Tests of a Metal Airscrew in a Closed Tunnel for Comparison with American Tests in an Open Jet Tunnel." By H. C. H. Townend and J. H. Warsap. Price 6d. net.*

Tests of airscrews made in a closed wind channel require correction for the effect caused by the channel walls. In the open jet type of tunnel corrections for the effect of the jet boundary are so small as to be negligible. To check the accuracy of the corrections usually applied in this country to closed channel tests a two-bladed metal airscrew which had already been tested in an open jet channel in America was lent to the Aeronautical Research Committee by the N.A.C.A. and tested in a 7 ft. N.P.L. type channel.

After applying the standard correction the results obtained agreed very closely with those from the open jet tunnel, showing that for screws of this size (3 ft. dia.) in the 7 ft. channel the corrections used are satisfactory.

THE ARTS AND AIR SURVEY.

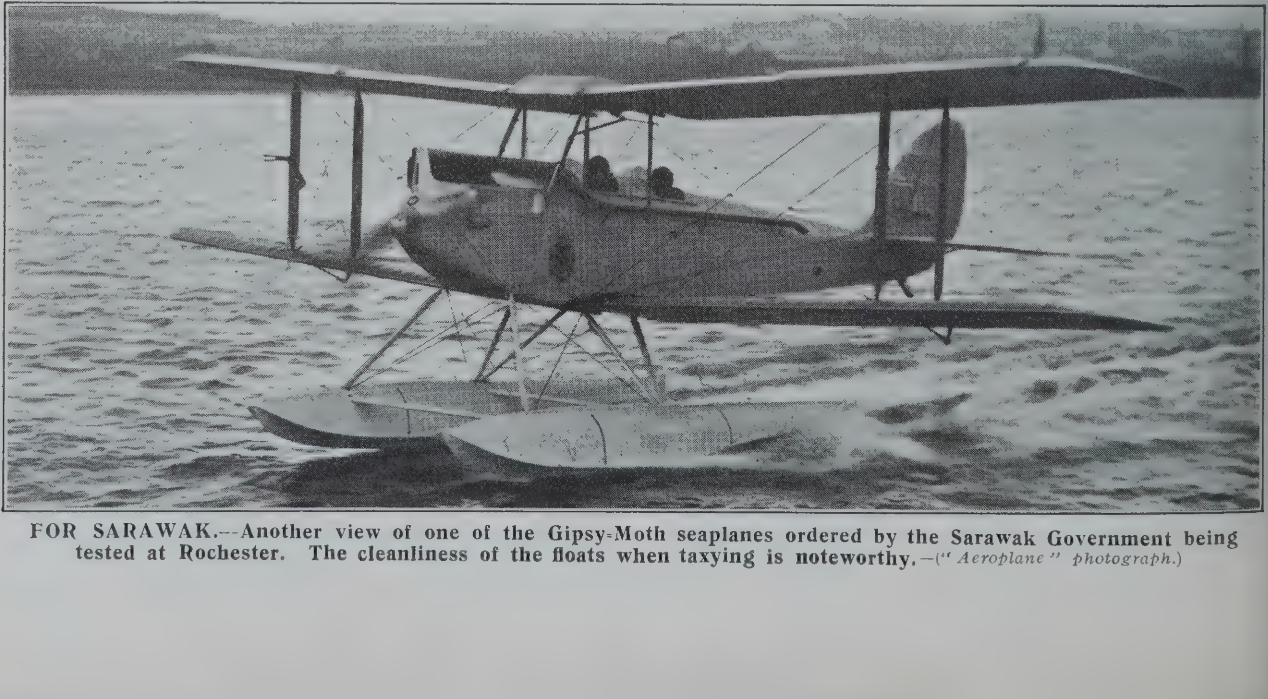
On Nov. 27, at 16.30 hours, Col. H. L. Crosthwait, C.I.E., Director of the Aircraft Operating Company, Ltd., will deliver a lecture on ' Air Survey and Empire Development ' to the Royal Society of Arts, at John Street, Adelphi, W.C.2.

This is a special ' Dominions and Colonies ' meeting of that venerable Society. Sir Thomas H. Holland, K.C.S.I., K.C.I.E., D.Sc., F.R.S., will preside.

Those desirous of attending the meeting will no doubt be able to get tickets from the Secretary of the Society.

WAPITIS FOR AUSTRALIA.

In a recent issue of THE AEROPLANE the statement was made that the Wapitis to be supplied to the Royal Australian Air Force by the Westland Aircraft Works have a top speed of 133 m.p.h. Mr. A. S. Keep, Technical Superintendent of the Westland firm, writes pointing out that this statement is true so far as concerns those with the Jupiter VI engine, but that the Wapitis which are now being supplied to the R.A.A.F. are fitted with Jupiter VIII (geared) engines and have a considerably better performance, for which at the moment official figures are not available.



FOR SARAWAK.—Another view of one of the Gipsy-Moth seaplanes ordered by the Sarawak Government being tested at Rochester. The cleanliness of the floats when taxying is noteworthy.—(*" Aeroplane " photograph.*)

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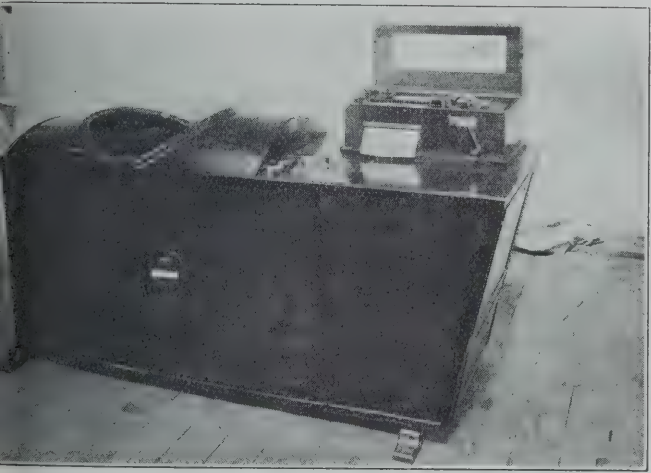

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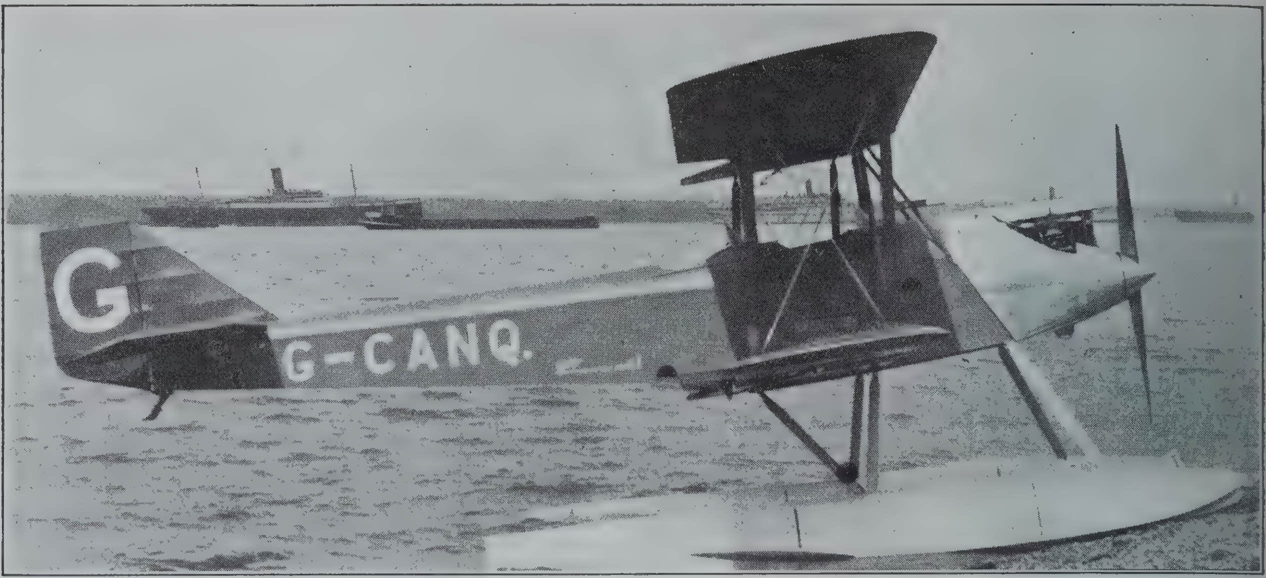

A CANAVIAN.—An Avro Avian (Cirrus Mk. III) just delivered to a Canadian concern.

THE FOKKER AIRCRAFT CORPORATION

A controlling interest in the Fokker Aircraft Corporation has recently been acquired by a group of capitalists which has at its head Mr. J. A. Talbot, president of the Richfield Oil Co. and Mr. H. M. Hanshue, president of Western Airways Inc.

The Fokker Aircraft Corporation with a capital of $4,000,000 is the financial side of the Fokker interests in America, and controls the Atlantic Aircraft Corporation which actually builds Fokker aircraft. The new controllers intend to build a large factory in California and to enlarge the existing works.

Mr. A. H. G. Fokker will remain as chief Technical Director of the firm.

ACROSS THE U.S. IN 24 HOURS.

Mr. C. B. D. Collyer flying a Lockheed Vega monoplane (Pratt and Whitney Wasp engine) with Mr. H. Tucker, owner of the machine as passenger, left Roosevelt Field, Long Island, N.Y., on Oct. 25, and reached Los Angeles, California, without a stop after 24 hours 51 minutes, making an average speed of about 150 m.p.h.

The previous fastest time non-stop for the East to West crossing of the United States was 26 hours 50 minutes made by Lt. Macready and Lt. Kelly, both of the U.S. Army Air Service, in 1923. But on June 23, 1924, Lt. Russell Maughan on a Curtiss P.W.8 pursuit-ship flew from New York to San Francisco in 21 hrs. 48½ mins. with four landings to refuel.

The same Lockheed Vega monoplane, piloted by Col. "Art" Goebel flew from Los Angeles to New York on Aug. 20 in 18 hours 55 minutes.

A SYDNEY TO LONDON ATTEMPT.

Mr. Frank Hurley, accompanied by Messrs. Moir and Owen, both lately Flying Officers, R.A.A.F., left Sydney at 04.38 hours on Oct. 30 for London.

They are flying a Ryan monoplane (Wright Whirlwind engine) which has fuel capacity for 3,000 miles. The machine is fitted with wireless transmitting and receiving sets, which it is hoped will permit of continuous communication with the ground over the whole journey.

The aim of the expedition is to reach London in the shortest possible time, and to turn round for Australia almost immediately on their arrival here in the hope of completing both journeys in a total of twenty-eight days.

MR. J. D. NORTH ON TECHNICAL DEVELOPMENT.

The paper by Mr. J. D. North on the Technical Development of the Aeroplane, which was read at the opening meeting of the current session of the Royal Aeronautical Society on Oct. 4, was one which deserves careful study, not only by aeroplane designers, but also by those who feel competent to criticise the designer's work.

Mr. North said that between scientific knowledge and the creative process of design there was a gap, and the business of technique was to bridge this gap. The designer's mind suggested solutions of the problems set before it, and technique was necessary to verify and refine these solutions.

The vortex theory of aerofoils was a striking instance of the development of technique, for it brought into order and proper perspective a vast mass of the data necessary for design and gave the designer a reasonable certainty as to what results could and what could not be attained in the way of aerofoil design.

There were still, however, large fields uncovered by any reliable theory wherein the designer could not certainly predict what was likely to happen, and this forced on him either a very expensive and laborious process of trial and error groping after a satisfactory solution, or else exposed him to a risk that his design would prove a failure from some unforeseen and unforeseeable cause.

In illustration of this Mr. North cited many remarkable cases of interference particularly of the type which affects the induced drag of aerofoils, revealed only by careful wind-tunnel experiments, and capable of making a vast difference to the hoped-for performance of a given design.

The paper is accompanied by a series of appendices illustrating how careful use of the wind channel in the process of design will allow the designer to escape pitfalls of this type. There is in addition a detailed analysis of the resistance of three typical aircraft, which seems to indicate how large a proportion of the engine power of modern aeroplanes is used in overcoming resistance which could be at least greatly reduced given a sufficient development of technique.

THE BRITISH TRADE IN BERLIN —Left to right, Mr. Palmer, Major Jack Stewart and Mr. Stack of A.D.C Aircraft Ltd., a German aerodrome official, a friend and Mr. Rennie.

(Continued from page 740.)

Night Flying.

Air Ministry *Notice to Airmen* No. 72 of 1928 states :—

All pilots are warned that on any night up to and including Dec. 15, between sunset and sunrise, Royal Air Force aircraft will be flying *without navigation lights* between the heights of 2,000 and 6,000 feet, over the area bounded by Bagshot, Woking, Farnham and Fleet.

Wing Commander F. L. Robinson.

Wing Cdr. F. L. Robinson, D.S.O., M.C., D.F.C., *q.s.*, whose appointment to command No. 10 (Bombing) Squadron, is dated September 21, 1928, was born in 1886 at Killiskry, Wicklow, and educated at Trinity College, Dublin, and Stockholm University. He entered the Royal Marines as a 2nd Lieutenant in September, 1914, and was promoted Lieutenant in January, 1915.

He went to France in February, 1916, and was attached to the R.F.C. as an Observer in June, 1916. In August, 1916, he returned to England and was appointed to the R.F.C. as a Flying Officer in October, 1916. In September, 1916, he was awarded the Military Cross for conspicuous gallantry and devotion to duty. He was promoted Flight Commander and temporary Captain in November, 1916. In June, 1917, he went to Mesopotamia and in August, 1917, he was appointed Captain, the Royal Inniskilling Fusiliers. He became a Captain, R.A.F., in April, 1918. From April, 1918, to April, 1919, he held the acting rank of Major.

In the *London Gazette* of April, 1919, he was appointed a Companion of the Distinguished Service Order. *The Gazette* states :—

A very gallant and able squadron commander who, by his fine leadership and personal example has raised high the moral of his command. By his untiring energy he has rendered most valuable service on reconnaissance duty and bombing raids.

In August, 1919, he resigned his Army commission on appointment to a permanent commission in the R.A.F. with the rank of Flight Lieutenant. In March, 1920, he was appointed to command No. 30 Squadron in Mesopotamia, and in January, 1921, he was promoted Squadron Leader. In October, 1921, he was awarded the Distinguished Flying Cross for continuous good work, gallantry and devotion to duty. In November, 1921, he was posted to H.Q., Inland Area, for Air Staff Duties, Operations and Intelligence. In July, 1924, he was promoted Wing Commander.

In 1925-6, he successfully passed a course at the Staff College, Camberley, and is thus entitled, as a qualified Staff Officer, to the letters *q.s.* after his name in the Air Force List. In January, 1927, he was appointed to H.Q., 'Iraq Command, for Personnel Staff Duties.

Wing Commander Philip Babington.

Wing Cdr. Philip Babington, M.C., A.F.C., whose appointment to H.Q., Inland Area, for Personnel Staff Duties is dated Oct. 1, 1928, was born at Marylebone in 1894 and educated at Eton. He joined the Inns of Court O.T.C. on Aug. 5, 1914, and was appointed 2nd Lieutenant, the Hampshire Regiment, on Aug. 31, 1914. He learned to fly on a Maurice Farman biplane at Netheravon and his Royal Aero Club certificate No. 1036 is dated Jan. 7, 1915. He was seconded to the R.F.C. as Flying Officer in April, 1915.

He went to France in June, 1915, and was promoted Flight Commander in October, 1915. In June 1916 he was awarded the Military Cross for distinguished service in the Field. He was promoted Squadron Commander and temporary Major in June, 1916, and appointed to command No. 46 Squadron, R.F.C., then stationed at Droglant and equipped with Nieuport two-seaters. In May, 1917, he was promoted Captain, the Hampshire Regiment, with seniority from June, 1916. He was promoted Major, R.A.F., in April, 1918, and in August, 1919, he resigned his Army Commission on appointment to a permanent commission in the R.A.F. with the rank of Squadron Leader.

In the New Year Honours of 1919 he was awarded the Air Force Cross in recognition of distinguished services during the War. In December, 1919, he was posted to Egypt to command No. 56 Squadron. In March, 1922, he was appointed to the Department of the Chief of the Air Staff, Air Ministry, and in July, 1924, he was appointed to command No. 19 (Fighter) Squadron at Duxford.

In September, 1925, he took over the command of No. 5 Flying Training School, Sealand. He was Captain of the Sealand Athletic Team which won the Air Council Cup in the Junior Championship for teams from Units under 500 in strength in 1927 and 1928.

A Staff College Magazine.

Early in December a new Service magazine, to be called *The Hawk*, will be produced by officers of the R.A.F. Staff College at Andover. *The Hawk* will contain short articles, with a leaven of lighter interest, and certain of the more interesting lecture given at the Staff College will also be published in so far as the material thereof does not reveal Service secrets.

Officers of the R.A.F. who are entitled to put *p.s.a.* after their names, those who hope some day to do so, and other intelligent officers of the R.A.F., will be well advised to get copies of *The Hawk*. This can only be done by subscribing in advance. At the moment the amount of the subscription does not appear to have been fixed, but inquirers should write to the Editor of *The Hawk*, the R.A.F. Staff College, Andover.

The Scilly Seaplane Base Dinner.

The seventh annual Re-union Dinner of the Seaplane Base, Scilly Isles (No. 234 Squadron, R.A.F.), took place on Oct. 19 at the Maison Lyons, Shaftesbury Avenue, W.1.

Sq. Ldr. V. R. Scriven, A.F.C., R.A.F., in the chair, was supported by over fifty of all ranks who had served during the War, in Scilly.

The toast of the Seaplane Base was most ably proposed by Mr. E. N. Reynolds, who in a characteristic manner recalled many humorous events. Mr. J. E. Lawrence responded.

Our visitors were welcomed by Mr. E. Chaffer, who coupled the toast with the name of Dr. W. B. Addison, whose work as Hon. M.O. during the early days of the Station, and whose timely assistance at the time of the influenza epidemic will always be remembered by those who were his patients. Dr. W. B. Addison, responding, gave the local news of our friends at the Isles.

Mr. W. J. Sims proposed the Health of the Chairman, Sq. Ldr. V. R. Scriven. The toast was received with enthusiasm and Sq. Ldr. V. R. Scriven in his reply gave a most interesting account of the present day flying boats and paid tribute to the men whose pioneer work during the War had founded the traditions of the Service to which it was his privilege and pleasure to belong.

An excellent musical programme was arranged by Messrs. Reynolds and Melmoth.

The Kingsnorth Gasbags.

The tenth annual re-union dinner of the Kingsnorth Gasbags will be held at the Crooked Billet, Crooked Lane, E.C., on Nov. 3. Officers and airmen who served at Kingsnorth and who wish to be present can obtain tickets, 7s. 6d. each, from the Hon. Secretary, A. A. Abbott, Esq., Surrey Works, Cobham, Surrey.

Rugby Football.

Royal Air Force Trial XV v. R.A.F. Cadet College, Cranwell.—The following have been selected to represent the Royal Air Force (Officers) Trial XV versus the R.A.F. Cadet College, at Cranwell, on Saturday, Nov. 3. Play starts at 14.30 hrs.

Flt. Lt. G. H. Brookman (Uxbridge), Flg. Off. C. H. G. Bremridge (Right wing) (Digby), Plt. Off. R. D. Cotton (Right centre) (Sealand), Plt. Off. J. R. H. Pott (Left centre) (Hornchurch), Plt. Off. N. E. White (Left wing) (North Weald), Flt. Lt. R. V. M. Odbert (Stand off) (Eastchurch), Plt. Off. D. L. McLean (Scrum half) (Worthy Down), Plt. Off. R. J. Stevens (Worthy Down), Flg. Off. F. V. Beamish (Cranwell), Flt. Lt. B. V. Reynolds (Leuchars), Flt. Lt. C. D. Adams (Halton), Plt. Off. H. A. Constantine (North Weald), Flt. Lt. J. S. Chick (Wittering), Flg. Off. G. R. Beamish (Wittering), Flg. Off. J. Clarke (North Weald).

R.A.F. Cadets, Cranwell v. Blackheath Wednesday :—The R.A.F. Cadets XV were beaten at Blackheath on Oct. 24 by Blackheath Wednesday, by two goals to one.

At 3 o'clock, when the match should have begun, only 12 of the Blackheath team had turned up and at 3.20 the game started with Blackheath still one man short. The ground was very wet and there were several storms of rain during the game.

In spite of this the Cranwell handling of the greasy ball was good. The forwards were well together and easily outclassed the Blackheath seven. During most of the first half Cranwell had the best of the game and were continually in attack. But the Blackheath defence was particularly steady and kept Cranwell out with long kicks into touch.

Two Blackheath attacks went right up to the Cranwell line but failed to produce a score. After a quarter of an hour's play the Cranwell left wing threequarter took a short pass from inside, did an "S" turn, handed off a Blackheath back, and with a fine burst of speed, scored between the posts. Blackheath fought hard to recover but the Cranwell tackling was too much for them.

Five minutes after the re-start Mr. A. T. Young (England, the Army and Blackheath) turned up to play scrum-half. The extra man in the scrum made a good deal of difference to Blackheath, who began to get the ball out of the scrum. Cranwell held them with hard tackling and some good forward work in the loose for about 20 minutes, when a Blackheath player gathered near the Cranwell 25, passed the Cranwell full-back, who was standing too close up, and scored, though brought down right on the line. The second Blackheath try was scored five minutes before time from a line-out. Both were converted. Cranwell attacked for the last few minutes but failed to score.—C. M. MCA.

Association Football.

R.A.F. v. Hampshire :—Hampshire County beat the R.A.F. at Winchester on Oct. 25 by 3 goals to 2. The R.A.F. played well together in the early stages of the game and ten minutes from the start scored through Vernon. Hampshire improved and equalised, but the R.A.F. combination was better and they were quicker on the ball. At the interval the score was two all, but in the second half Hampshire showed themselves superior both in speed and combination and scored their third goal after 8 minutes' play.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]

Aerodrome: Stag Lane Aerodrome, Edgware, Middlesex.

Report for week ending Oct. 28.

Instructors: V. H. Baker and F. R. Matthews. *Ground Engineer*: C. Humphreys. *Aircraft*: NY, MP, AABL, XS.

Flying Time: 46 hr. 25 min.; *Instruction*: 37 (21 hr. 5 min.); *"A" Pilots*: 32 (23 hr. 35 min.); *Passengers*: 7 (1 hr. 45 min.).

Notes.—Mr. A. L. F. Hill passed for his "A" Licence.

Cross-country flights for instruction in navigation were made by Messrs. T. Elder-Hearne, J. J. Hofer and P. A. Wills.

Reading Pageant.—The Club was represented at the Reading Pageant by Mr. F. R. Matthews and Mr. P. A. Wills on G-AABL.

Damage to G-AABL.—On Sunday Mr. F. Heath crashed G-AABL. Side-slipping into the aerodrome he misjudged the distance and landed heavily. The damage is fairly considerable. The accidents to G-EBMF and G-AABL, in the last fortnight have reduced aircraft to three.

The Lancashire Aero Club.

[Sec.: F. W. Atherton, Woodford Aerodrome, Cheshire.]

Report for week ending Oct. 27.

Chief Instructor: D. E. Hall. *Voluntary Asst. Instructors*: J. C. Cantrill and J. J. Scholes. *Ground Engineers*: Bartram and Chapman. *Aircraft*: 1 (XD).

Flying Time: 5 hr. 40 min.; *Instruction*: 5 (1 hr. 35 min.); *"A" Pilots*: 6 (1 hr. 35 min.); *Passengers*: 7 (2 hr.); *Tests*: 30 min.

Notes.—Stormy weather and machine troubles have played havoc with our flying times this week. NF was written off in the crash last Sunday. On the same day MQ was damaged through her airscrew hitting the ground when taking-off. Unfortunately the damage was not confined to the airscrew but extended to the engine-mounting.

QL, which had an undercarriage crash a fortnight ago, is being kept out of commission a few days longer so that the new type of Avian undercarriage may be fitted. This latest type has given very successful results on test over the rough surface of our aerodrome and we are hoping by fitting it to avoid the trouble with cracked wing spars which we have occasionally experienced in the past.

PH, which came into commission to replace NF, only lasted for one flight, when it was discovered that the airscrew was damaged at the trailing edge. As we were not carrying any spare airscrew for the Alpha engine she is out of commission until a new one is made.

[Mr. Ramsden, who was injured in Mr. Caldecott's accident on Oct. 21, died in Stockport infirmary on Octo. 25.—Ed.]

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for October.

Instructor: G. M. S. Kemp. *Ground Engineer*: K. C. Brown. *Aircraft*: 2 (PT and IX).

Flying Time: 57 hr. 20 min.; *Instruction*: 10 (12 hr. 45 min.); *"A" Pilots*: 12 (38 hr. 45 min.); *Passengers*: 18 (4 hr. 30 min.); *Tests*: 6 (1 hr. 20 min.).

Notes.—Our activities have been somewhat limited recently due to the fact that the Club was closed during the last two weeks in September for the Staff's annual holiday, and on re-opening being without the services of a Pilot Instructor. Mr. G. M. S. Kemp has now been appointed and we are fortunate in securing him.

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. J. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Oct. 27.

Instructor: G. R. Beck. *Chief Ground Engineer*: R. Morris. *Assistant Ground Engineer*: T. Houghton. *Aircraft*: 2 (RF and SV).

Flying Time: 7 hr. 15 min.; *Instruction*: 5 (2 hr. 35 min.); *"A" Pilots*: 7 (4 hr. 30 min.); *Tests*: 2 (10 min.).

Notes.—Practically no flying except on Sunday, Oct. 21. Bad weather.

We had a welcome visit from Sir Sefton Brancker at the week-end when he came over by air to attend an official dinner in Leeds. Owing to the fog on Tuesday he was unable to return by air.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Aerodrome: Castle Bromwich, Birmingham.

Report for week ending Oct. 27.

Instructors: Flt. Lt. T. Rose, D.F.C., and W. H. Sutcliffe. *Engineer*: W. J. Halland. *Assistant Engineer*: G. Rees. *Aircraft*: 3 (LT, LW, and XT).

Flying Time: 20 hr. 38 min.; *Instruction*: 9 (5 hr. 25 min.); *"A" Pilots and Soloists*: 16 (12 hr. 50 min.); *Passengers*: 3 (1 hr. 55 min.); *Tests*: 28 min.

Notes.—Flt. Lt. Rose flew XT from Filton to Castle Bromwich on Sunday. [And went to Reading by car the Saturday following.—Ed.]

Several privately-owned machines called in during the week.

Flying was only possible on four days owing to extremely bad weather. Two members went in search of the sun. Mr. E. R. King ascended to 15,000 ft. and Mr. R. L. Jackson to 12,000 ft., both on XT

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, The Hampshire Aeroplane Club, Hamble Southampton.]

Aerodrome: Southampton Aerodrome, Hamble.

Report for week ending Oct. 27.

Instructors: Flt. Lt. F. A. Swoffer and W. H. Dudley. *Ground Engineers*: E. Lenny and J. Elliott. *Aircraft*: 2 (OI and OH).

Flying Time: 20 hr. 10 min.; *Instruction*: 20 (14 hr. 40 min.) *Soloists*: 3 (1 hr. 15 min.); *"A" Pilots*: 7 (3 hr. 40 min.); *Passengers*: 2 (45 min.); *Tests*: 7 (35 min.).

Notes.—The weather this week has been very bad and on Wednesday and Friday the machines were unable to leave the hangar.

On Thursday Lt. T. P. Coode, R.N., passed his height test.

Our engineers did a smart piece of work the other day. One of our Cirrus Mark II engines came off service with a cylinder-head joint blowing. The head was removed and replaced and the engine was on service again before it had had a chance to get cool. [That's the stuff to give 'em.—Ed.]

We were pleased to be visited again by Mr. J. G. Crammond, who arrived on Sunday in his Avian, and by Messrs. Smith and Baker, who came in the slotted Gipsy-Moth (registered in the name of the latter); also by Mr. Bert Hinkler, whom we last saw on the eve of his remarkable flight to Australia.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadleigh, Suffolk.]

Aerodrome: 2 miles E. from Hadleigh, Suffolk.

Report for week ending Oct. 27.

Instructor: G. E. Lowdell, A.F.M. *Ground Engineers*: "C," E. Mayhew; "A," G. Keeley. *Aircraft*: 3 (RE, SZ, and UH).

Flying Time: 12 hr. 50 min.; *Instruction*: 9 (4 hr. 45 min.); *"A" Pilots*: 6 (4 hr. 40 min.); *Passengers*: 12 (2 hr. 40 min.); *Tests*: 9 (45 min.).

Notes.—One of our members, Mr. S. Schofield, has just returned from a trip to America. (No, not on one of the Club Bluebirds.) While there he did a considerable amount of flying and as a result of his training at Hadleigh was able to obtain an American Limited Commercial Licence, which calls for very exacting flying tests with simplified technical tests. This licence permits joy-riding for hire within a limited distance of a licensed aerodrome. The idea might be worth following in this country as such a licence would be extremely useful in the Club world.

Our friends in Hampshire will thus see that our member has now returned and it will no doubt relieve them to know that he has got a little beyond his "A" Licence stage. While he greatly appreciates the kind invitation to join the Hampshire Club he thinks that he prefers to stay here with three machines at his disposal for 6 hours a day rather than have 2 minutes a day, which is about all he could hope for when 411 members were sharing three machines.

The Cambridge Aeroplane Club.

The Cambridge Aeroplane Club is about to be launched as a branch of The Suffolk and Eastern Counties Aeroplane Club. This is at the express request of members and potential members who live in the Cambridge district and find Hadleigh rather a long way by road when they want to fly. As a start it is proposed to send a machine to Cambridge on Mondays and Thursdays. If, however, the demand arises, further facilities will be provided. An excellent aerodrome has been found on the Cambridge-Huntingdon Road and it is hoped to start the Club in active flying early in November.

The Cinque Ports Flying Club.

[Hon. Sec.: R. Dallas Brett, 114, High Street, Hythe, Kent.]

Aerodrome: Lympne, Kent.

Report for week ending Oct. 27.

Instructor: H. G. Travers, D.S.C. *Ground Engineer*: R. J. Wynne. *Aircraft*: 1 (NN).

Flying Time: 7 hr. 55 min.; *Instruction*: 5 (6 hr. 45 min.); *Passengers*: 3 (30 min.); *Tests*: 4 (40 min.).

Notes.—Our new pilot owner member, Mr. Law, commenced instruction this week.

Consequent upon some remarks in *The Daily Mail*, this Club has entered into an Agreement with the Household Brigade Flying Club, the membership of which is restricted to serving officers of the Brigade of Guards, for special arrangements to be made for teaching their members who are drafted to the Canterbury Depot or to the Small Arms School. The keenness of Guards officers is marked, and before this arrangement, we had four officers from the Canterbury Depot under instruction, two of whom have taken their licenses with this Club. These facilities have been extended in a modified form to cover all serving officers in the Regular Army who are doing the Course at the Small Arms School.

AT SWALLOWFIELD.—The Inaugural Meeting of the Berks, Bucks, and Oxon Club. Sq. Ldr. England is seen on the left on the slot-winged Moth.

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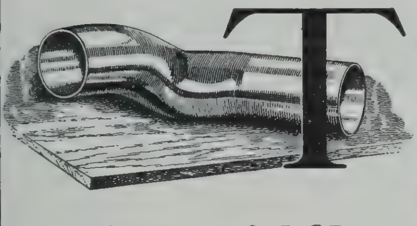

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The Berks, Bucks and Oxon Aeroplane Club.

[Hon. Sec.: Miss L. Cribb, 12, Highmoor Road, Reading.]

The Berks, Bucks and Oxon Aeroplane Club had the worst of luck on their opening Pageant on Oct. 27. But at any rate they proved that the aeroplane is a practical transport vehicle, for thirteen good and true pilots arrived at the little temporary aerodrome at Swallowfield, five miles due South of Reading. It was a difficult aerodrome to find, and visibility could only have been worse in a fog.

The machines present were,—EBYK, Mr. Broad; AABL, London Club, Mr. Matthews; AAAI, Mr. Malcolm; EBUR, Mr. McClure; EBOT (formerly Miss Spooner's machine), Mr. Powis; EBZY, Mr. Peter Hoare; EBQE (the Shell machine), Mr. Shaw; EBRT, Mr. Jackaman; AAAL, Miss Spooner (her new machine with slots and a Gipsy engine); EBZF, Sq. Ldr. England. These are all Moths. Besides them there were EBZM, an Avro Avian lent to the Oxford University Air Squadron and piloted by Flt. Lt. Bruce; EBXN, a D.H.53 monoplane, Flt. Lt. Ragg; and EAJA, a 3-seater Avro, Mr. Miles of Shoreham.

Considering the weather there was quite a good crowd, very much of the class which one sees at a hunt point-to-point meeting, that is to say most of the local sporting people and the local rustics. Despite an excellent 'bus service close to the aerodrome, very few townspeople took the trouble to come out from Reading.

Although there was a proper printed programme, the events were rather of the go-as-you-please order, also thanks to the weather. The air race over a set course had to be washed out because, as Mr. Broad said, somebody had stolen the turning-point. Mr. Broad gave one of his usual splendid displays of aerobatics under a ceiling of black cloud at about 500 feet. Sq. Ldr. England demonstrated the Handley Page slot with his usual efficiency. Lots of pilots took lots of people for joy-rides. And everybody was wet but happy.

The Committee of the Club, the Chairman of which is Mr. Arthur Russell, of Swallowfield Park, close to the aerodrome, deserve hearty congratulations on the success which they have already achieved. They have all worked terribly hard, and they have already enrolled 200 members. An encouraging fact is that Saturday's Meeting produced enough money to cover all the expenses.

After the flying was over, Mr. Arthur Russell and his elder brothe Sir Charles Russell, entertained a large party of those concerned wi the flying at Swallowfield Park, and their hospitality certainly mo than compensated everybody for any discomforts they endured i getting to or at the aerodrome. Sir Charles and his brother have bee keenly interested in flying from the earliest days, and Mr. Arthu Russell was at school with the late the Hon. Charles Rolls, hence h early interest in the sport. The B.B. and O. Aeroplane Club is fortunate in having such valuable backing at the start.—C. G. G.

The Household Brigade Flying Club.

For some months past those more intimately concerned with privat flying have known that there has been a movement towards formin a Flying Club composed of officers belonging to the Brigade of Guard The subject has been discussed confidentially, and anyhow, wha the Brigade of Guards does is very much a family affair and not intended for the delectation of the outside public. However, as th formation of this Club has been disclosed in print it may as we be recorded in The Aeroplane. At present the nucleus of the Clu exists at Brooklands and one gathers that those officers of the Guard who are already interested in the Club intend to have a kind of Flyin At Home at Brooklands on or about Nov. 10.

That the Brigade of Guards should look favourably upon flyin is a good thing for British Aviation. Only about 25 years ago a officer of the Guards, or in fact of any really good regiment, wh took a vivid interest in motor-cars, was regarded as rather outsid the pale of decent society, or, if he happened to be a man otherwis of pleasing personality and of good family, he was at best regarde as being distinctly eccentric. Now, however, thanks possibly to th War 1914-18, flying is regarded as a game in which officers an gentlemen can engage without losing caste. Whatever the Guards d is always as done, and their example should bring many new privat owners into the net of Commercial Aviation.—C. G. G.

[Unfortunately, owing to pressure on space, the reports of four club have to be held over till next week.—Ed.]

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 12; Monday, 15; Tuesday, 18; Wednesday, 17; Thursday, 18; Friday, 21; Saturday, 19.

Imperial Airways Ltd.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 51, passengers 345, freight 19 tons.

Air Union:
Paris—London and return: Machines 25, passengers 74, freight 14 tons.

K.L.M.:
Amsterdam—Rotterdam—London and return: Machines 12, passengers 57, freight 4½ tons.

Sabena:
Brussels—London and return: Machines 12, passengers 10, freight 2 tons.

Deutsche Lufthansa A.G.:
Amsterdam—London and return: Machines 12, passengers 36, freight 2½ tons.

Miscellaneous:
British machines 7, passengers 3.
Foreign machines 1, passengers 1.

Total number of trips by British Machines, 58, carrying 348 passengers. Foreign Machines, 62, carrying 177 passengers.

COMPARATIVE PASSENGERS.

Week ending Oct. 27:
Machines, 120; Passengers, 525; Crews, 232; Total personnel, 757.
Corresponding week, 1927:
Machines, 90; Passengers, 430; Crews, 161; Total personnel, 591.
Corresponding week, 1926:
Machines, 68; Passengers, 175; Crews, 85; Total personnel, 260.
Corresponding week, 1925:
Machines, 83; Passengers, 213; Crews, 95; Total personnel, 308.
Corresponding week, 1924:
Machines, 82; Passengers, 346; Crews, 102; Total personnel, 448.
Corresponding week, 1923:
Machines, 64; Passengers, 142; Crews, 95; Total personnel, 237.
Corresponding week, 1922:
Machines, 52; Passengers, 210; Crews, 78; Total personnel, 288.
Corresponding week, 1921:
Machines, 43; Passengers, 112; Crews, 59; Total personnel, 171.
Corresponding week, 1920:
Machines, 64; Passengers, 128; Crews, 85; Total personnel, 213.

Croydon Notes.

All the arrangements for Lt.-Cdr. Glen Kidston's departure for East Africa are complete, and the expedition should have left Croydon before these lines appear in print.

Surrey Flying Services have rearranged the cabin interior of the Fokker monoplane, which is now equipped to take photographs and cinema films from the air, and is provided with stowage for provisions and the like.

Mr. Drew, of Imperial Airways, is once again to pilot this machine, which will carry Lt.-Cdr. Kidston and a frienc a cinematograph operator and a valet.

An interesting arrival at Croydon last week was the littl Koolhoven F.K.41, brought across from Rotterdam on Tuesday by Mr. Bramson, with Mrs. Bramson as passenge This is a very neat and simple three-seater cabin monoplan fitted with a 100 h.p. Siemens-Halske air-cooled radial engine

The pilot on this machine is totally enclosed by a curve windscreen of some cellulose material which even in it present new and clean condition does not give the cleares possible vision, and can scarcely be satisfactory in rain Apart from this detail the machine looks singularly pleasing

Further specimens of this type, to be fitted with A.D.C Cirrus engines, are to be laid down forthwith.

The exodus of light aeroplanes bound Berlin-wards, note in last week's issue, has had its sequel in returns toward the end of last week.

Mr. Neville Stack, who returned on Friday morning, havin a machine with about eight hours' petrol supply, and a engine in perfect running order, and a wind of somewher round 40 m.p.h. at 2,000 ft., was sighing for fresh non stop records. But the suggestion that with the wind as i was Iceland was his only reasonable goal did not move hin to enthusiasm.

The complainings of residents in the neighbourhood of th aerodrome as to the nuisance caused by aeroplanes was th occasion of a meeting held on Friday morning. It wa attended by Sir Sefton Brancker and Mr. Bertram on th part of the Air Ministry, by representatives of all the regula aircraft operating firms at Croydon, and by one representative of the complaining residents.

No information as to what passed at this meeting has bee released for publication, but there seemed to be an impression in some quarters that the Director of Civil Aviation—possibly by way of atonement for a much-criticised remar made on a recent and somewhat similar occasion—had show himself unnecessarily ready to accept the complainants view of the case.

PERSONAL NOTICES.

Births.

ROBB.—On Oct. 25, at Ketton, near Stamford, to Bessie (*née* Johnston), wife of Sq. Ldr. J. M. Robb, D.S.O., D.F.C., R.A.F.—a daughter

WINGFIELD.—On Oct. 10, at Lincoln, to Dorothy May, wife o Cecil P. Wingfield, Flg. Off., R.A.F.—a son.

Marriage.

ARCHER—LA FARGUE.—On Oct. 27, Flt. Lt. Gordon Archer, R.A.F. to Marie Beryl Valentine, only daughter of Mr. and Mrs. Frederick Russell La Fargue, of 7, Allen House, Kensington.

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THE AEROPLANE—NOV. 7, 1928.

WAR EFFORTS.

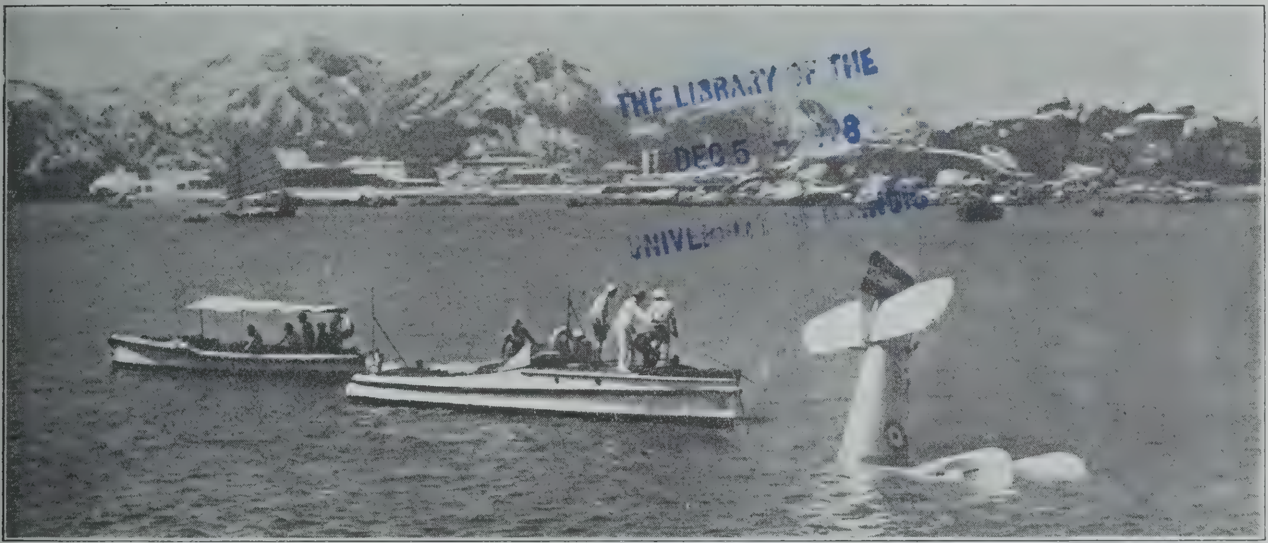
THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXXV. No. 19. SIXPENCE WEEKLY. Registered at the G.P.O. as a Newspaper.

"THE DEEP DAMNATION OF HIS TAKING OFF."
(SHAKSPEARE—*Macbeth*.)



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TAILS UP!—A Fairey Flycatcher of No. 403 (Fleet Fighter) Flight in H.M.S "Hermes" being rescued off Kai Tak where the R.A.F. Base is stationed. The engine cut out when the machine was taking-off. The pilot escaped with a ducking.

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ON TEN YEARS OF PEACE.

When the Armistice with Germany was signed on November 11, 1918 (ten years ago "come Sunday," as our provincials say) most of those who are to-day officers and men of the Royal Air Force were small boys at preparatory schools. To most of them the so-called Great War is a dim memory in which a scarcity of sugar and butter and cakes and a superfluity of dark-coloured bread is mingled with visions of their grown-up friends and relations being dressed in khaki or dark blue, and a hazy recollection of being disturbed at nights or scared in the day-time by air raids.

Those who are a little older may remember how Mr. Lloyd George and his followers prated about "a war to end war" and about making England "a land fit for heroes to ive in,"—the latter an unfortunate phrase which not long after the outbreak of peace made a beautiful opening for humorists to remark that under such a Government nobody except heroes could live in it. And some may even remember a recruiting poster of the kind which would now be described as "wet," in which a small boy of their own age was shown (hypothetically in the period of to-day) asking impudently, "What did *you* do in the Great War, Daddy," One wonders whether any officers of to-day have been spanked for asking that question eight or nine years go.

The idea of war to end war was so grotesque that only he most gullible of people could have been taken in by it. Man being by nature a predatory animal everybody who was t all able to think recognised that the great lesson of the Great War was that the best policy, as always, is in time f peace to prepare for war.

To-day, practically ten years after the fighting ended, we re in a better position to learn the lesson of the war than we were immediately after the Armistice. At that time he people of all nations, men, women and children, were xhausted by a war which was one of the shortest but ertainly one of the most strenuous wars in history. Not nly the fighting men but the workers in factories and hose who worked for them were thoroughly worn out. In fact, so far as England was concerned, the people at home were physically weaker than the troops in the field, because the best of our food very rightly went to the troops. Consequently, when the fighting stopped all that everybody wanted, after the first gigantic spree of celebrating the rmistice, was to sit down and rest and recuperate. Practically everybody was suffering from war nerves in one way or another. All our industries had to be reorganised, and for a year or so something very like chaos existed, though, thanks to the British genius for keeping our heads in an emergency, it was a fairly orderly chaos.

To-day, in spite of the croaking of pessimists and their continual moaning about our masses of unemployed and our supposedly bad state of trade, the fact remains that we are the best fed, the best housed, the best amused and all round the most contented people in the World. We may not be so well paid in actual money as are the Americans, but our money buys more.

OUR SERVICES TO-DAY.

We still have the biggest Navy in the World and the biggest Empire for it to serve. We may not have the biggest Army in the World but ours is certainly the best equipped and the most highly efficient. And we may not have the biggest Air Force in the World, but the R.A.F. is certainly better organised, better trained, more experienced, and mounted on more reliable aeroplanes than is any other.

All of us lost many of our closest and dearest friends and relatives during the war 1914-18. The Nation as a whole lost in the first year or so of the War the flower of its manhood, thanks to our ridiculous system which relied on a volunteer Army instead of on conscription. And yet there is perhaps reason in the argument that none but a volunteer Army could have stood up to what the old British Regular Army and the first drafts of Territorials and volunteers endured during those early months when we were overwhelmed and defeated but never beaten. And afterwards, when conscription was introduced, conscript for conscript our men were still the best.

To-day, now that the children who were at school when the Armistice was signed are grown men and women, we see how false were the ideas of those who told us that the men who died in the early part of the War could never be replaced, and of those who told us that the sufferings of the war would kill the spirit of war in the Nation.

Those who have the privilege of knowing the younger officers and men of the Fighting Services to-day know that physically they are as good as any men we have bred in this country since, hundreds of years ago, the British Isles first became a menace to the peace of Europe, or, alternatively, since we became the fighting power which butted in on European wars and put an end to them by force of arms when they interfered too seriously with our Trade.

TEN YEARS AGO.—The Commanding Officer and Non-commissioned Officers of No. 24 Squadron in France in 1918. In the background are some of the machines, S.E.5as (180 h.p. Viper engines) with which the Squadron was at that time equipped. The C.O. is the late Sq. Ldr. Vivian Robeson, who, with Group Capt. M. G. Christie (now our Air Attaché in Berlin) was the founder of the R.A.F. Dinner which is held annually on the eve of the R.A.F. Display.

And those same young men, who physically are such fine fighting material, are in spirit just as ready for another war as were the men of their age fourteen years ago, or forty years ago, or four hundred years ago.

Intellectually the young fighting men of to-day are better equipped than were their fathers or their ancestors. One who knew the old Army well, and knows the new Army equally well, remarked the other day that the private soldier of our mechanised forces to-day is a better educated man than was the N.C.O. or warrant officer of the days before August 1914. And in saying this he meant not only that the soldier of to-day can read and write better but that he has an all-round grasp of international affairs and of the theory and practice of war such as was unknown in soldiers of the previous generation.

From certain of one's surviving friends of the Navy one gathers that the Lower Deck ratings of to-day are equally far in advance of the Navy of ten years ago. And, what is even more important, the rising generation of Naval officers, even up to the rank of Post Captain, is now distinctly threatened with intelligence and has even reached the stage of understanding not only the limitations but the possibilities of aircraft in Naval warfare.

As to the Air Force itself a comparison between the youngest officers and men to-day and those of 1914 would be utterly unfair. Fourteen years ago the Royal Naval Air Service and the Royal Flying Corps were merely experiments.

The R.N.A.S. was so experimental that it had practically no two machines alike. Those who want to see what its equipment was like are recommended to read Snowden Gamble's "Story of a North Sea Air Station." The R.F.C. was experimenting with standardisation of experimental machines produced by the Royal Aircraft Factory of Farnborough, or by French manufacturers.

The officers of the R.N.A.S. were a mixture of the R.N., R.N.R., R.N.V.R., and a few civilians, and the men were Naval ratings. The officers of the R.F.C. were regular soldiers, Militia and Territorials with a few civilians brought in as Special Reserve officers. The men were Sappers brought in for their mechanical knowledge, Guardees imported to impart discipline, and odd civilians with mechanical and aeronautical leanings.

To-day the R.A.F. is certainly by far the finest force of its kind in the World. The older officers and warrant officers and N.C.O.s are men with war experience. Those of them who were regular soldiers or pukka R.N., while remembering the best of the manners and customs of their old Services, have grown up with the new spirit of the R.A.F. which was born during the War. Those who came in straight off the street, as it were, during the War have absorbed with the traditions of the R.A.F. the spirit of the Senior Services.

The Cadet College at Cranwell is giving to the R.A.F. officers with permanent commissions who are in every way, socially and intellectually, the equals of the officers in the senior services. The School of Aircraft Apprentices at Halton is producing airmen who (one says it with a full sense of responsibility) are superior to the non-commissioned ranks of the Senior Services in education, social position and deportment.

The Short-service officer of to-day is much more carefully selected than he was six or seven years ago. He has an excellent system of vocational training at his disposal if he cares to use it. And he has the advantage of an Employment Board to find him a suitable job at the expiry of his term of service. Airmen who have been enlisted direct without passing through Halton, are also of a high class and have opportunities for education, with good prospects of employment on leaving the Service.

The young R.A.F. has its faults. Heaven knows non of us is free from faults,—even the Church quarrels over it Prayer Book. But taking it all round the R.A.F. to-day is after ten years of peace, just about the finest Fighting Service that has ever existed in the World. And it is abou our best insurance against war.

A CORNER OF HISTORY.

But there is perhaps one matter in which the younge officers and men of the R.A.F. to-day are not so fully instructed as they might be. And that is precisely how muc was done by their predecessors who fought and died betwee August, 1914, and November, 1918, or survived the Armistic to face an apparently bleak and empty peace. Fortunatel some official person was moved very shortly after th Armistice to compile some facts and figures concerning ou work in the air during the War. This was published by th Air Ministry, under the date Jan. 1, 1919, as Comman Paper 100, with the title "A Synopsis of British Air Effor during the War." This publication is now unobtainable, bu fortunately it has survived in the printing works of TH AEROPLANE. The story is rather curious and it is perhap worth the space which it takes to tell.

The historical value of the facts and figures was recognise when Command Paper 100 was produced, and it was pu into type with the intention of publishing it in THE AEROPLANE. Unfortunately with the coming of peace there cam also a cutting-off of aircraft contracts and, as a natura sequence, the cutting off of advertisement contracts in TH AEROPLANE. This entailed the cutting down of the number c pages of reading matter in THE AEROPLANE. And so ther was never room for Command Paper 100, for things kept o happening in aviation and current news had to be given precedence over recent history.

Very shortly after Command Paper 100 appeared, a recor of the work of the German Air Arm during the War appeare in the *Illustrierte Flug-Welt* of Leipzig. This was translate by a correspondent of THE AEROPLANE and was also put int type. It likewise had to be left unpublished in the post-wa slump.

Some three or four years ago one was going through wha is called in the printing trade the "over-matter" or "standing matter" of THE AEROPLANE, and one came across thes two records of the Air Forces of Great Britain and German They had been in type for six or seven years, so it struc one that they might just as well remain in type for anothe three or four years and appear as nearly as might be on th tenth anniversary of the Armistice for the education and edification of those who were too young to have been intereste in them when they were published.

One presents them herewith in the very certain hope tha they will now be appreciated at their true value.—C. G. G.

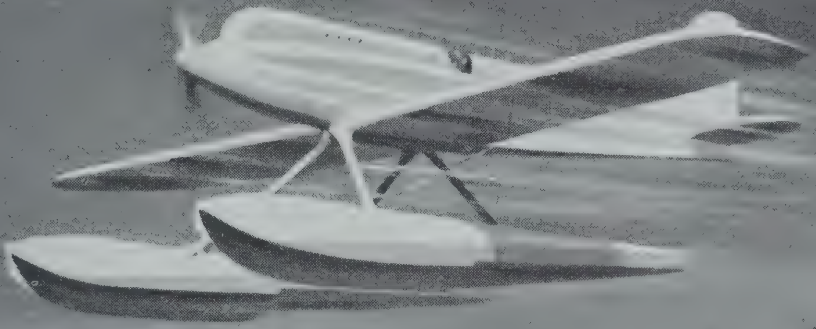
A SYNOPSIS OF BRITISH AIR EFFORT DURING THE WAR.

1. Development of the British Air Service.

EARLY ORGANISATION.

On August 5th, 1914, the British Air Service consisted of Naval wing, known as the R.N.A.S., a Military wing, know as the R.F.C., and a Central Flying School. The Naval win which was controlled by the Admiralty, comprised an airshi squadron recently taken over from the Military wing, and aeroplane and seaplane squadrons with a total of 93 machine The Military wing, which was controlled by the War Offic comprised 4 aeroplane squadrons with a total of 179 machine The two wings had a total combined personnel of 197 office and 1,647 other ranks. The squadron was the tactical uni and still remains so.

A WAR-TIME BOMBER.—A Vickers Vimy (Rolls-Royce Eagles) getting off at Brooklands.



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Never before has any human being travelled at such a high rate of speed.

This speed was achieved at Calshot, near Southampton, the timing being carried out by officials of the Royal Aero Club of Great Britain.

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The Royal Aircraft Factory at Farnborough was mainly engaged on experimental work, and the bulk of the machines and equipment for the Air Service was supplied by private manufacturing firms.

On the declaration of war some additional squadrons were hastily formed by the R.N.A.S. from all available sources in the country, and certain cross-Channel and other vessels were chartered and converted into aircraft carriers. Two squadrons of aeroplanes manned by the R.N.A.S. were sent to Belgium with the Naval Division to attempt to defend Antwerp, and the aircraft flown from the carriers undertook the protection of the ship channels off the East Coast of England from minelaying, and made attacks on the German Frisian Coast.

The squadrons with the Naval Division constituted the nucleus of the force which was later formed at Dunkirk, under naval control, for the attack of the bases at Zeebrugge and Ostend. The employment of the small aircraft carriers originated the practice, since largely developed, of carrying aircraft in men-of-war, in lighters, and in special large aircraft-carrying ships attached to the Fleet.

At the same time, all pilots and machines of the Military wing, available for service overseas, were mobilised and concentrated at Dover, and on August 13th, 1914, 4 squadrons (56 machines) of the Military wing, accompanied by an aircraft park, proceeded to France. The machines landed at Amiens, flew to Maubeuge, where there was an aerodrome, and at once commenced work in co-operation with the British Expeditionary Force.

These squadrons played their part in the retreat from Mons and suffered heavy casualties both in personnel and machines, but with the advance to the Aisne sufficient reinforcements were sent out from home to make good the wastage and to permit of expansion, so that by the end of November, 1914, there were 6 squadrons in France, which were then divided into 2 wings of three squadrons each. This wing system of organisation was continued, and as further squadrons were sent to France new wings were formed, the administration of which was throughout 1915 centred in Headquarters, R.F.C., France. With a continued increase in numbers it was found that this method of administration was unwieldy, and in January, 1916, the first R.F.C. Brigade was formed.

The organisation was now found to work satisfactorily, and, on the conclusion of the Armistice, the Royal Air Force operating with the British Army in France consisted of 6 brigades, comprising 17 wings, 84 squadrons, 5 special-duty flights, and 26 miscellaneous units.

The development of the Home organisation, to keep pace with the ever-growing requirements in various theatres of war, presented a problem of extreme difficulty, as the dispatch overseas in August, 1914, of all the immediately available machines and pilots left only a small nucleus behind upon which to build.

Machines and Engines.

The bulk of the machines were supplied by 8 private firms, who built to either Government or private design, and the remainder were produced by the Royal Aircraft Factory at Farnborough. The orders placed with the contractors had been given under peace conditions, and were very small, particularly as the Government design of aeroplanes was, at the moment, in a state of transition.

The supply of engines presented a task of equal difficulty. On the outbreak of war, the aero-engine industry was practically non-existent; lack of experience, lack of skilled labour, and lack of suitable plant made its organisation and development at high pressure an extremely arduous undertaking. None the less, steady progress was made, and in 1918 England possessed the largest and most efficient aircraft industry in the world.

Some idea of the growth of aeroplane and engine production during the war may be gathered by reference to the Appendix.

Personnel and Training.

Linked with the difficult problems of the supply of aeroplanes, engines, and other technical material were equally difficult problems involved in the supply of highly specialised personnel. Chief among the latter was the question of the supply of pilots. For these, the main source was the Central Flying School at Upavon, which had accommodation for about 40 pupils, and from which many of the serviceable machines had necessarily been taken for the first overseas expedition. During the first six months of the war, instruction was further hampered by the scarcity of experienced instructors and by the fact that there were only 4 Government aerodromes in the British Isles. Civilian flying schools were pressed into use and fresh service stations constructed, with the result that by May, 1915, training was being carried out at 11 stations, and 234 officers were actually under instruction. In May, 1916, 15 training stations were in full working order and a further 10 in course of construction, with 963 officers and other ranks under flying instruction. In the same year, schools of military aeronautics were opened at Oxford and Reading, and, in addition to flying instruction, a high standard of technical education was aimed at. By March, 1917, there were 32 training stations in existence, 15 more under construction, and a school of special flying for training instructors. Cadet wings were started to deal with the influx of pupils, and special schools of aerial gunnery, aerial fighting, and artillery and infantry co-operation were established.

APPENDIX.

Personnel.

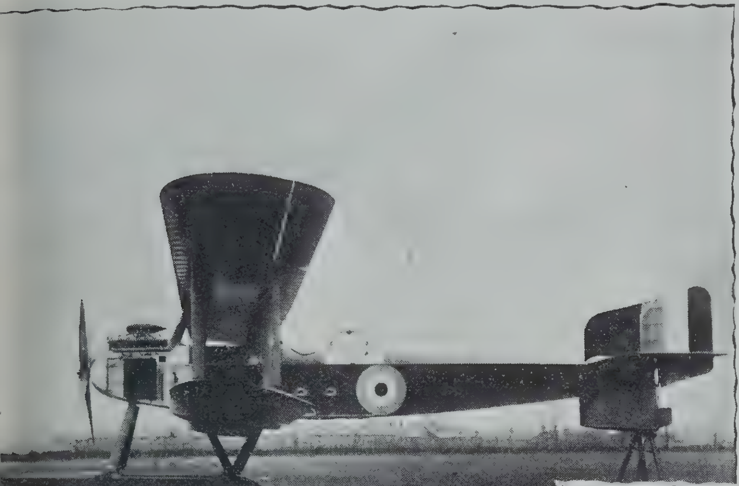
—	August 1914.			December 1916.			December 1917.			October 1918.		
	Officers	Other Ranks	Total.	Officers.	Other Ranks.	Total.	Officers.	Other Ranks.	Total.	Officers	Other Ranks.	Total.
R.F.C. ...	147	1,097	1,244	5,982	59,195	57,897	15,522	98,738	114,260	...	...	...
R.N.A.S. ...	50	550	600	2,764	26,129	28,893	4,765	43,050	47,815	...	...	...
R.A.F. ...		...	...	...	...	...	...	...	...	27,906	263,842	291,748
Total ...	...	...	1,844	...	...	86,790	...	...	162,075	...	...	291,748

Machines and Engines on Charge

—	August 1914.		January 1917.		January 1918.		October 1918.	
	Machines.	Engines.	Machines.	Engines.	Machine.	Engines	Machines.	Engines.
R.A.F.	179	...	3,929	6,056	8,350	11,755	...	
R.N.A.S.	93	...	1,567	3,672	2,174	6,902	...	
R.A.F.	...	...	...	...	...	...	22,171	
Total	272	...	5,496	9,728	11,091	21,657	22,171	

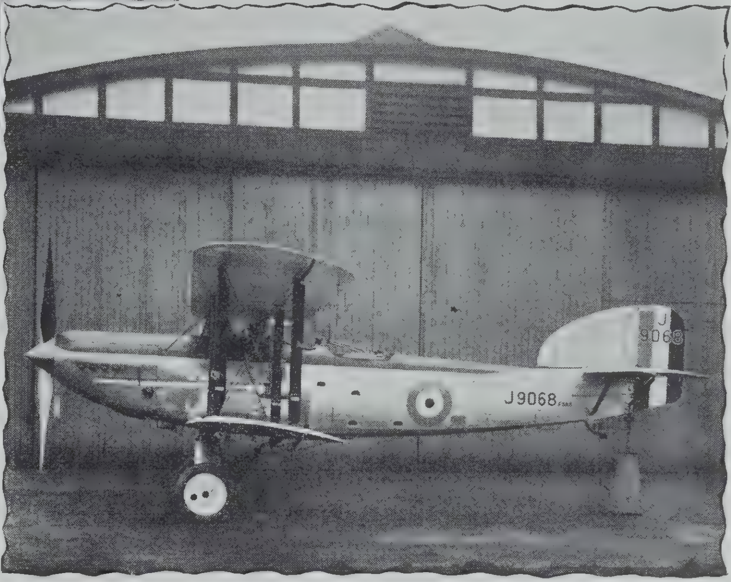
Output of Machines and Engines.

—	August 1914 to May 1915 (10 months).		June 1915 to February 1917 (21 months).		March 1917 to December 1917 (10 months).		January 1918 to October 1918 (10 months).	
	Machines.	Engines.	Machines.	Engines.	Machines.	Engines.	Machines.	Engines.
R.F.C.	530	141	7,137	8,917	12,275	...	...	...
R.N.A S.	No record.	No record.	No record.	No record.	1,246	...	...	...
R.A.F	...	...	...	...	...	...	26,685	29,561
Total	530	141	7,137	8,917	13,521	13,979	26,685	29,561



TEN YEARS PROGRESS

1918 - 1928



1918

Above. *The Fairey "Campania" seaplane, one of the early types of Fairey aircraft produced in 1917-1918, and extensively used by the Royal Naval Air Service*

1928

Right. *The Fairey III.F. all-metal General Purpose type aircraft. One of the latest types now in production, the III F. is a standard R.A.F. type in both its General Purpose and Fleet Air Arm forms.*

During the period covering the last ten years many Fairey aircraft have been evolved and great numbers have been built and supplied for use in Air Forces throughout the world. Many hundreds of machines have been commissioned in the Royal Air Force alone, and it is significant that at the present moment, there are six different types of Fairey aircraft employed in this Service as standard equipment. Apart from the vast strides made in design, manufacturing processes have also reached a very high stage of development, particularly with the general adoption of metal construction, which offers many structural advantages besides the facility with which it lends itself to large production.

The Fairey Aviation Company Limited,
Hayes Middlesex

FAIREY AIRCRAFT

Later Organisation.

In February, 1917, an attempt was made to remedy these defects by the formation of an Air Board, upon which the Admiralty and the War Office were represented. All questions of supply were at the same time placed under an Aircraft Production Department of the Ministry of Munitions, which successfully solved this difficult problem. The Air Board became responsible for the design and allocation of aircraft and accessories, but the actual administration of the two services remained separate. Although this was an improvement on the old system, it was found that there was still considerable duplication of effort and waste of energy, and it was finally decided to amalgamate the two air services and to place them under one central control. Accordingly, in January, 1918, a Secretary of State for Air was appointed, and the Air Board was reconstituted as the Air Ministry to take over the administration of both the naval and military air services, which were amalgamated to form the Royal Air Force in April, 1918. Prior to this amalgamation, the organisation of the Royal Flying Corps at home consisted of a training division comprising 199 squadrons and 13 schools. The schools were directly under the training division, and the squadrons were organised into 4 training brigades with 22 wings. The R.N.A.S. consisted of a number of groups, which were administered directly by the Admiralty. It was recognised that both these systems were capable of considerable improvement, and a new organisation was set up. Great Britain was divided into 5 areas under the direct control of the Air Ministry, but each area was responsible for its own internal administration, and was sub-divided into training and operational groups.

Turning to the developments in the general organisation, it will be remembered that for the first two and a half years of the war the expansion of the fighting air services was developed to a large extent by the Navy and Army along parallel lines, and there is no doubt that the existence of these separate air service organisations resulted not only in considerable unnecessary expenditure, but also in confusion and delay in obtaining supplies.

In addition, Egypt and Canada were provided with training facilities, and by December, 1917, there were 78 training squadrons at home, 15 in Canada, and 5 in Egypt. On the conclusion of the armistice there was a total of 199 training squadrons, and the pupils under instruction, inclusive of cadets, numbered 30,000. 21,957 pilots have been trained and graduated as efficient for active service, and, though the training of pilot and observer personnel has been one of the heaviest responsibilities of the Air Ministry, it is believed that the British system of training is the best that has yet been evolved. We have also rendered assistance in this respect to all our Allies, especially to the Americans, who have adopted our system. In the early days of the war, the urgency of the demand rendered it necessary for pilots to go overseas immediately they had reached the minimum standard of efficiency, and 5 hours' solo flying qualified a pilot for France. This minimum time was gradually raised and at present the official minimum is 35 hours, including 5 hours on the service type of machine to be flown overseas, and, in fact, very few pilots have done less than 50 hours before they are sent on active service. Apart from the actual instruction in flying, pilots and observers receive a specialised training for the particular work they have to do in connection with reconnaissance, aerial fighting, spotting and bombing for the Fleet, anti-submarine, and Army duties. The improved efficiency obtained from this scientific mode of training has been one the principal factors in the attainment of the air supremacy.

In addition to the training of flying and observer personn it has been necessary to establish a number of technical schoo in which equipment officers and other ranks receive suitab training in the various specialised branches of their work, su as engine construction, wireless telegraphy, photography, arm ment, navigation, etc. In the Appendix will be found a tab setting forth the growth in personnel of the British Air Servi since 1914. Then it consisted of 197 officers and 1,647 oth ranks, whereas to-day there are 27,906 officers and 263,842 oth ranks. [Note.—" To-day " means Jan. 1, 1919.—C. G. G.]

It is under this new organisation that the main developme in the air service has taken place, and it is claimed that t results achieved in all theatres of war, as well as in hom defence, have more than justified the establishment of the Roy Air Force as an independent fighting force of the Crown.

It is not possible in this brief review of the development the air services to enter into any great detail, nor has it bee considered necessary to describe or to trace very closely t successive steps in its growth. It may be interesting, howeve to give some few details of the development and achievemen of the air services in the various theatres of war:—

2. Co-operation with the Army.

Western Front.

In this theatre, the British air service has expanded from squadrons to 84 squadrons, with 5 special-duty flights and miscellaneous units, such as aircraft parks, repair depôts, et Owing to the difficulty of collecting detailed records from som of the earlier-formed units, and the fact that many records hav either been lost or destroyed, it is impossible at the moment give any accurate summary of operations in the air previous July, 1916. Since that date careful records have been kept, an will be found collected in the Appendix. It is worth notin that, from July, 1916, to November 11th, 1918, the Royal A Force on the Western front (including the Independent Forc destroyed or brought down 7,054 enemy aircraft, dropped 6,94 tons of bombs, flew over 900,000 hours (nearly 103 years), an fired over 10½ million rounds at ground targets.

In addition to the work of the main force working with t armies on the Western front, the operations of the Independe Force, R.A.F., are worthy of special mention. During 191 and 1915 isolated raids were made by the R.N.A.S. on Cuxhave Düsseldorf, and Friedrichshafen, but shortage of material an other difficulties made it impossible to keep up sustained effort In October, 1917, the 8th Brigade, R.F.C., was formed operate from the Nancy area against the German chemical an iron industries. This brigade accomplished much valuable worl but only consisted of 3 squadrons, and on April 1st, 1918, whe the Royal Air Force came into being, the Air Ministry immed ately recognised the great possibilities of a policy of strateg interception, as well as the opportunities for striking at th *moral* of the German nation. Every effort was made to buil up and maintain in the field a powerful striking force to execu a series of systematic raids on the key munition and chemica industries of Germany. Accordingly, on June 8th, 1918, t Independent Force, Royal Air Force, was constituted, and t 3 squadrons of the original 8th Brigade, R.F.C., were graduall increased to 10. Of these, 5 were for day bombing, 4 for nigl bombing, while the 10th consisted of scouts for the protectic of the raiding formations and for defensive operations again the enemy fighters.

Results of Operations in the Air

——	July 1916 to Nov. 11, 1918	January 2, 1918, to November 1, 1918.									
	Western Front.	Independent Force.	Home Forces.	5th Group and Naval Units.	Italy.	Egypt.	Mesopotamia.	Salonika.	Palestine.	India (Aden).	Total.
Enemy aircraft accounted for, *i.e.*, brought down or driven down	6,904	150	8	470	405	25	6	59	81	...	7,908
Our machines missing ...	1,484	540	...	114	44	9	13	8	24	...	2,810
Bombs dropped ... (tons)	6,402	4	...	662	59	43	25	30	74	30	7.945
Hours flown	889,526	11,787	...	39,102	25,206	7,022	7,862	23,417	21,848	579	1,016,346
Rounds fired at ground targets	10,238,182	353,125	...	...	222,704	50 937	107,563	193,354	735 550	7,527	11,858,137
Photographs taken ...	401,375	3 682	...	3,440	14,596	8,135	66,720	15.587	27,039	542	501,1 6
Enemy balloons brought down	258	...	...	...	...	...	...	...	...	...	258

Note.—Records are not available of the results obtained by Expeditionary Force, Western Front, prior to July 1916, or by 5th Group and Naval Units, or in Eastern Theatres prior to January 1918. The absence of these records, however, will not materially affect the totals shown as regards enemy aircraft accounted for, our machines missing, or the weight of bombs dropped, owing to the comparatively recent growth in intensity of aerial fighting and the smaller number of aircraft engaged.

[Editorial Note.—The figure for "Our machines missing" refers to those lost over the enemy's side of the lines, and does not include those shot down in our own territory. And no figures are available which give the casualties of the R.N.A.S., R.F.C., or R.A.F.]

The Simmonds "CIRRUS-SPARTAN."

The "CIRRUS" Again!

"The Times," 25th Oct. 1928.

NON-STOP FLIGHT, LONDON TO BERLIN A LIGHT AEROPLANE RECORD.

"A Simmonds 'CIRRUS-SPARTAN' aeroplane, piloted by Mr. H. W. R. Banting, with Lieutenant-Colonel L. A. Strange as passenger, created yesterday what is stated to be a world's record for a non-stop flight by a light aeroplane with passenger. The machine, with 50 gallons of petrol on board, left Croydon Aerodrome at 6.30 a.m. and reached Berlin in direct flight at 12.45 p.m.

The aeroplane is the same one as that piloted by Flight-Lieutenant Webster in this year's King's Cup Race, and is of special interest because it is fitted with interchangeable wings and control surfaces. Only a little more than half the fuel was expended on the flight. The engine used was a standard A.D.C. Cirrus Mark III, developing 85 horse power."

"The Sunday Times," 28th Oct., 1928.

NON-STOP FLIGHT, LONDON TO BERLIN.

"The Simmonds 'CIRRUS-SPARTAN' which on Wednesday last made the world's longest non-stop flight for a light aeroplane, carrying pilot and passenger, by flying direct from London to Berlin, yesterday repeated this remarkable feat by returning non-stop with the same crew from Berlin to London in under six hours."

The Avro "CIRRUS-AVIAN."

◆

"The Times," 20th Oct., 1928.

RECORD LONDON TO BERLIN FLIGHT.

"Captain Neville Stack, who made the first flight to India in a light aeroplane, made to-day what is claimed to be record time for a non-stop flight in a light aeroplane, and possibly in any aeroplane.

He was bringing an urgent message from London to the A.D.C. stand at the International Aeronautical Exhibition in Berlin. In an AVIAN light aeroplane fitted with a Cirrus Mark III engine of only 85 h.p. he covered the distance of over 1,000 kilometres (620 miles) between London and Berlin without a stop in 4 hrs. 52 mins."

Fit a

"CIRRUS," The Proven Aero Engine.

Manufacturers:—
A.D.C. AIRCRAFT LTD.,
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The effect, both morally and materially, of the raids on German territory carried out during the summer of 1918 can hardly be over-estimated. The utterances of the German press and public bear eloquent testimony to the results of the new policy, and it is known that the German High Command were compelled to recall at least 20 fighting squadrons from the Western front, and to immobilise a large number of ground troops to man anti-aircraft batteries and an elaborate system of searchlights and balloon barrages. In fact the policy was so successful that when the Armistice was signed on November 11th 1918, it was intended to increase the Independent Force to a total of 48 squadrons by the end of May, 1919.

Dardanelles.

The Air Force in the Gallipoli campaign was supplied entirely by the R.N.A.S. In spite of many and severe hardships and almost insuperable difficulties in regard to transport, supply, and workshop and repair arrangements, much excellent work was accomplished, particularly during the latter stages of operations. In addition to the normal duties of co-operating with the Army and the various units of the Fleet, the R.N.A.S. was called upon to photograph the greater portion of the Peninsula for map-making purposes, and by means of these photographs the first very inaccurate maps were corrected.

Constant bombing operations were also carried out on various objectives on the Peninsula and in the Straits, and frequent raids were made on the enemy's lines of communication, on the mainland, and upon Constantinople itself.

The Dardanelles campaign was essentially a joint enterprise, and the fact that the Royal Naval Air Service was able to supply the needs of both Navy and Army is a tribute to its efficiency and adaptability. A single intelligence system was maintained, and the photographs and observations were distributed to both the naval and military Staffs. Further, it is not too much to claim that the success of the evacuations from Suvla and Helles were, in a considerable measure, due to the reconnaissance and patrol work of the R.N.A.S. It was in this campaign that torpedoes were for the first time carried by aircraft, and three enemy ships were destroyed in the Dardanelles by this means.

Middle East.

While the development of the R.F.C. was in progress in France, development on a similar, though smaller, scale, was taking place in the Middle East. The organisation in this theatre began in connection with the Turkish operations against the Suez Canal early in 1915. As soon as the intended attack on the Canal became known, a flight of aeroplanes was made up by taking two machines which were on their way to India, and a few others which happened to be in Egypt for exhibition purposes. By the autumn of 1915 this flight had been expanded to a squadron and dispatched to Mesopotamia, while one other squadron sent from England took its place in Egypt and became the nucleus of expansion for the Middle East. A training organisation was set up in Egypt, new units were trained, and early in 1916 the wing in Egypt was able to detach a squadron to Salonica. The organisation continued to develop, and in July, 1916, was formed into a brigade with three Service wings in Macedonia, Sinai, and Mesopotamia respectively, a training wing in Egypt, and a squadron in East Africa. In 1917 the Middle East Brigade became a Major-General's Command, and in October, 1918, consisted of :—

Egypt.—1 training brigade of 8 squadrons, 3 schools of speci flying, 1 cadet wing, 1 school of military aeronautics.

Palestine.—1 brigade of 7 squadrons.

Mesopotamia.—1 wing of 3 squadrons.

Macedonia.—1 wing of 3 squadrons.

In addition, the Command included 1 aircraft depot, 3 aircra parks, 1 aircraft factory, and a number of engine-repair section Details of the achievements of these units in their respectiv theatres will be found in the Appendix.

Italy.

The British Air Service did not operate on the Italian fron until November, 1917, after the Italian retreat from the Isonz when the Italian brigade was formed and dispatched. A brie mention of the assistance given to our allies in this theatre wi be found later on in this Paper, and the results achieved ar set out in the Appendix. It is acknowledged that our squadron rendered very valuable assistance in turning the Austrian retrea into a rout.

Russia.

Co-operation with the Russians in this theatre of war commenced in the latter part of 1916, and short details of the assis ance given will be found in the appropriate place.

India.

In 1917 two squadrons were provided for India, where they hav played an important part in quelling trans-frontier risings.

Darfur.

In 1916 a flight of aeroplanes was dispatched from Egypt t Kordofan and played a useful part in the expedition against Darfur.

Aden.

During 1917 half a flight was dispatched from Egypt to co operate with the British forces at Aden, and a flight was sent t Jeddah to co-operate with the forces of the King of the Hedjaz.

Palestine.

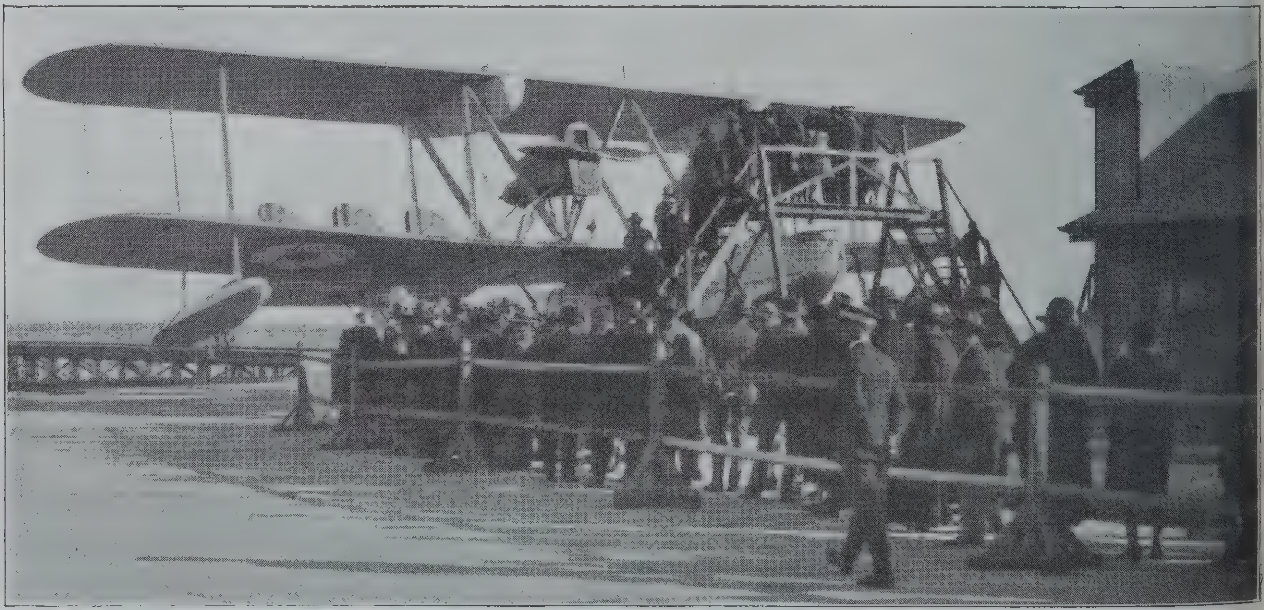
The Palestine Brigade was formed in 1917 by expanding th wing attached to the E.E.F. This in turn had developed from th nucleus of one flight, which was formed to co-operate with ou troops in the defence of the Suez Canal early in 1915. The Ai Force in this theatre has had an exceptionally splendid record which culminated in the Palestine Brigade achieving complete ai supremacy during the critical period of the final operations. N single hostile aeroplane crossed our line. It is worthy of note tha such complete air supremacy has not been obtained elsewhere b any belligerent in any theatre of war.

Macedonia.

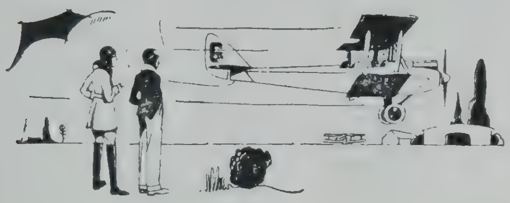
The wing in Macedonia is also a very efficient organisation; i has maintained the best traditions of the Royal Air Force, and it work has been repeatedly praised by the Army Commander. During the present year its air supremacy has been almost complete

Mesopotamia.

The Air Force in Mesopotamia consisted in 1915 of a composite squadron of aeroplanes which was sent from Egypt This squadron was severely handicapped through lack o machines, climatic conditions, and inadequate personnel. I 1916 one additional squadron was sent out to form a wing which was placed for administration under the headquarter

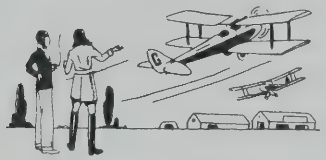


A PEACE-TIME INSPECTION.—One of the Supermarine Southamptons (Napier Lions) of the Far East Flight, opened to inspection by the Australian public at Sydney.



SPEAKING OF SPEED ◆ ◆ ◆

The Moth won the King's Cup Race, 1928, for the third year in succession—1,100 miles round Britain at full throttle.

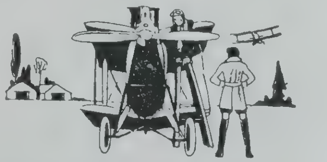


TALKING OF CLIMB ◆ ◆ ◆

The Moth holds the World's Altitude Record for 2-seater Light Aeroplanes.

AND THEN THIS STRENGTH QUESTION ◆ ◆ ◆

The Moth was the first aeroplane in England to accomplish the Inverted Loop—a manœuvre that demands absolute structural strength. For 3½ years in the hands of pilots in every stage of efficiency the Moth has undergone 1000% more gruelling than any other light aeroplane. The new Gipsy Moth is the direct outcome of this unique experience.



WHICH LEADS, OF COURSE, TO RELIABILITY ◆ ◆ ◆

The Moth created an Endurance Record by remaining in the air continuously for 24 hours. The previous best was 13 hours. The Moth has done 1000% more flying in every part of the World than any other aircraft of the same class.

Gipsy MOTH

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of the Middle East Brigade. This wing rapidly gained a marked ascendancy over the enemy's air service, which was manned and equipped in Germany. This supremacy has been consistently maintained, and the wing in Mesopotamia holds a record of good work under extremely difficult conditions which compares favourably with that of any wing in the Royal Air Force.

EAST AFRICA.

Operations in East Africa were commenced by the R.N.A.S. sending out some seaplanes to operate on the coast late in 1914. Their early work is described later under the heading of "Co-operation with the Navy." In 1915 this force was brought up to a strength of two squadrons, the seaplanes being replaced by aeroplanes, and was placed under the orders of the military forces operating in the north. Most valuable reconnaissance work over dense bush country was carried out under difficult conditions. Every landing ground had to be constructed by making clearings in the bush, and at one time the lines of communication were over 600 miles in length. Shortly afterwards additional squadrons were sent out by the R.F.C. to operate farther south and also did valuable work.

3. Co-operation with the Navy.

GRAND FLEET.

In November, 1914, the R.N.A.S. supplied aircraft to the Fleet for reconnaissance purposes and defence against Zeppelins, and by the spring of 1915 a trans-Atlantic liner and two smaller vessels had been provided equipped with reconnaissance and fighter seaplanes. These were subsequently replaced by aeroplanes which were flown from the decks and turrets of ships while the latter were under way.

The potential value of aerial scouts was soon realised, with the result that several other large aircraft-carrying ships were added to the Fleet, and the practice was in process of being established by which each battleship, battle cruiser, and light cruiser was to carry its own aircraft on proceeding to sea.

By July 1918 70 aeroplanes were being carried by the Fleet as part of the battle equipment.

Few opportunities presented themselves for employment of these aircraft in the face of the enemy, but the arrangements for their employment prior to and during a Fleet action were systematically improved. Very valuable work was done during the battle of Jutland, in several raids into the Heligoland Bight, and in attacks on German airships met in the North Sea.

ANTI-SUBMARINE PATROLS.

The patrol of waters infested by enemy submarines was commenced by the R.N.A.S. in September, 1914, and was gradually increased in scope until, at the time of the declaration of the armistice, there were no less than 39 seaplane and 26 aeroplane stations round the British coast and in the Mediterranean engaged on this duty.

The duties of the aircraft engaged consisted of carrying out patrols over the seas in search of enemy submarines, in escorting convoys, and in assisting surface vessels to hunt submarines known to be in their vicinity. It may be claimed that the success which has attended the anti-submarine campaign has been largely due to their activities.

DOVER-DUNKIRK PATROL.

As mentioned earlier, the R.N.A.S. squadrons which proceeded to the Dunkirk district were engaged against the enemy very early in the war. Their numbers were gradually increased to eight fighters and bombers, and during the following four years an unremitting attack by air on the submarine bases at Zeebruge, Ostend, etc., was carried out in spite of strong anti-aircraft defences.

The Dover-Dunkirk group also constantly assisted in denying the Dover Straits to enemy submarines, in attacking enemy aeroplanes proceeding to or returning from London, and in spotting for the British monitors, etc., bombarding the enemy bases and forts.

HARWICH AND THE NORE.

In addition to anti-submarine operations, the aircraft under Naval orders in the locality of Harwich and the Nore have been continuously engaged in locating and destroying mines laid by the enemy off our coasts. Special long-distance reconnaissance work was also carried out from this area, and flights were made into localities infested with enemy seaplanes, and often resulted in heavy engagements, necessitating as many as five machine-guns being carried in the large seaplanes.

MEDITERRANEAN AND ADRIATIC.

In view of the great activities of enemy submarines in the Mediterranean and Adriatic Seas, the work of the aircraft engaged on anti-submarine duties has been of a most important character.

Anti-submarine aircraft have been stationed in the Ægean and at Malta, Gibraltar, and latterly at Alexandria. In the early part of 1917, a wing was also formed in Italy to assist the Otranto barrage in closing the southern end of the Adriatic to enemy submarines, and in bombing the Austrian naval ports in the Adriatic. These units have also assisted materially in protecting convoys and in harassing submarines in all parts of the Mediterranean.

Other functions have been the bombing of lines of communication and places of military importance in Turkey and Albania, and the defence of Allied territory from enemy aerial attack.

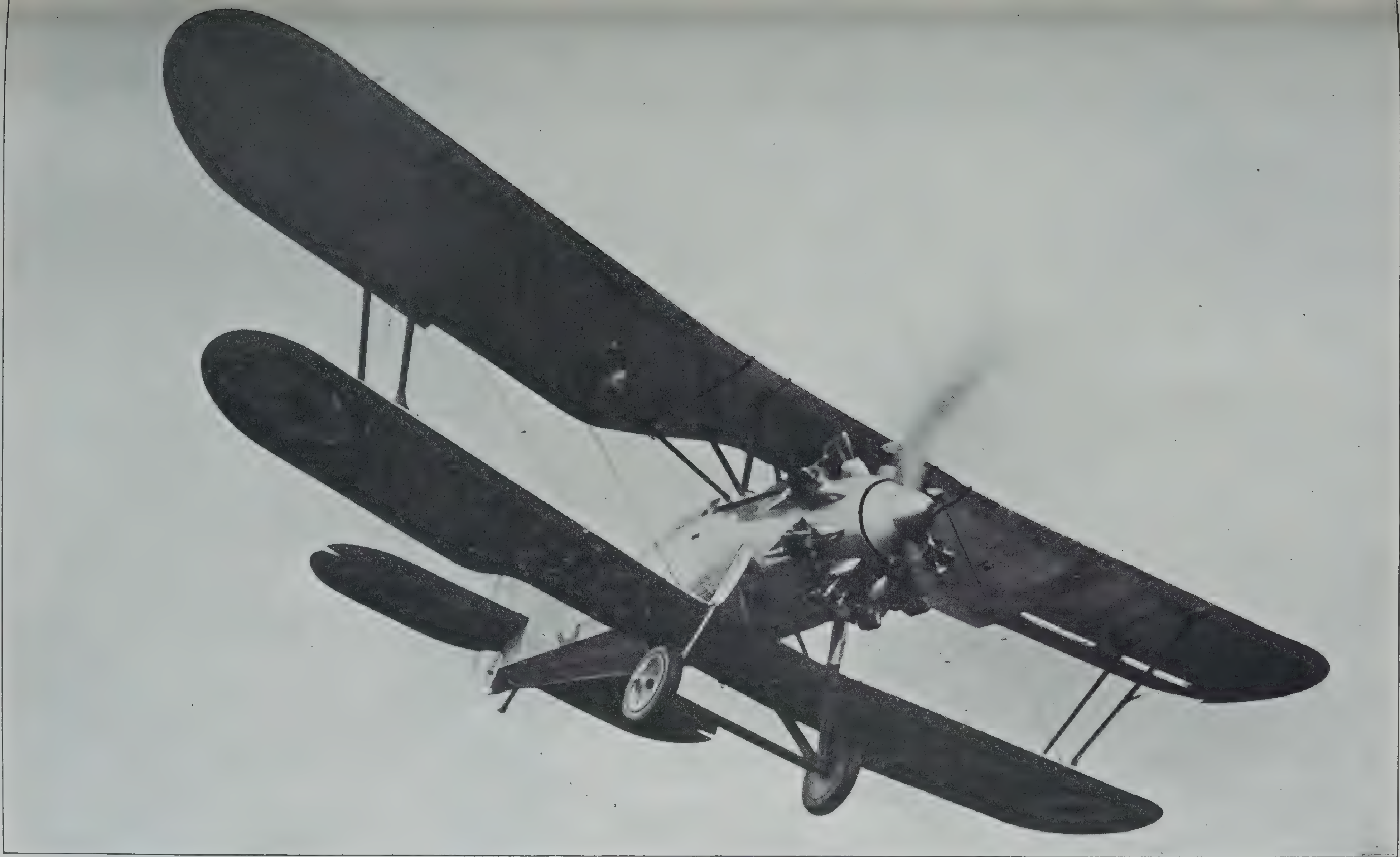
DARDANELLES, PALESTINE, AND THE RED SEA.

The operations of the R.N.A.S. in the Dardanelles, Palestine, and the Red Sea have already been referred to.

EAST AND CENTRAL AFRICA.

As already stated, seaplanes were sent to the East Coast of Africa early in 1915 to take part in the operations on the Rufigi River, the approaches to which had been fortified by the crew of the German cruiser "Königsberg," and rendered valuable assistance in locating the position of the cruiser and of the gun emplacements, and in directing the fire of our ships over the bush.

FRENCH AVIATION IN 1928.—Some Officers and N.C.O. pilots of a fighter squadron belonging to the "34me Regiment d'Aviation" stationed at Le Bourget. The machines are Nieuport-Delage 62 single-seat fighters (500 h.p. Hispano-Suiza engines).



"Flight" Photo.

The "BRISTOL" BULLDOG, fitted with the "BRISTOL" JUPITER (Series VII) engine.
A single-seater fighter of remarkable performance adopted for the equipment of the Royal Air Force and justly described by the "Evening News" as "Better than anything in the world."

Several aircraft at a later date were sent to Lake Tanganyika to co-operate with the Belgian forces.

ARCHANGEL.

In 1918, the aircraft carrier, H.M.S. "Nairana" was sent to assist the Navy in the attack on this port. The seaplanes did valuable reconnaissance and bombing work, and materially assisted the capture of the port.

4. Airship Service.

On the outbreak of war this Service consisted of 3 airships only, with a personnel of 24 officers and 174 other ranks; there are now (November, 1918), 103 ships in service, with a personnel of 580 officers and 6,534 other ranks.

During the transportation of the original Expeditionary Force to France in 1914, two of the three existing airships assisted in patrolling the Channel. These were subsequently employed on similar patrol duties from Kingsnorth and Barrow. The third airship was based at Dunkirk in the early part of 1915 and cooperated with the Belgian artillery at Ostend. The development of our present airship service, however, may be said to date from February 1915, when approval was given for the construction of the first SS. airship. During the year, 27 ships of this type were completed, the construction of a further 20 was begun, and the new "Coastal" type was also developed. In the meantime, experiments were directed to extending the range and duration of patrols, and a number of other new types were produced and commissioned.

In August, 1915, an airship contingent was dispatched to the Dardanelles, and was incorporated in that Force.

Its headquarters were at first at Imbros, but were subsequently transferred to Mudros. Early in 1916 an outlying station was formed at Kassandra for anti-submarine work. Towards the end of 1916 one airship was stationed at Dunkirk and another was lent to the R.F.C. for work in France. In 1917 a detachment was sent to Italy in connection with six airships purchased by the Italian Government.

The duties carried out by the airship service are reconnaissance, coastal and anti-submarine patrols, escorts and mine detecting.

5. Kite Balloons.

Four units of this branch were sent to France to operate with the Army, and one unit was sent out to the Dardanelles in H.M.S. "Manica," a merchant vessel chartered and fitted out for the purpose.

The work of these units was so successful that additional sections were rapidly formed. The R.F.C. took over the balloon work on the Western Front, and five other vessels were equipped for balloon service in East Africa, in the Mediterranean, and off the Belgian coast.

At the end of 1915, a great advance in the development of balloons was made by the introduction of the practice of towing them from ships under way. The invention of the French Cacquot balloon in 1916 assisted in the development, and the employment of balloons towed from all types of ships, from su marines to battle cruisers, for reconnaissance and artillery spo ting purposes was soon a prevalent practice.

By July, 1918, no less than 30 balloons were being taken sea by the Grand Fleet on all occasions.

Balloons have aided materially in the anti-submarine campaig and have been towed from drifters, trawlers, and motor-launch in large numbers for reconnaissance purposes when hunting sub marines and also when escorting convoys.

The expansion on the Western Front has also been great, an at the present time there are no less than 83 kite balloon section of the Royal Air Force.

6. Home Defence.

Enemy air raids on Great Britain did not assume serious pr portions until 1915, before which hostile aeroplanes and airshi came over merely for purpose of reconnaissance. During 191 and 1915 the anti-aircraft organisation was under the control o the Admiralty. In 1915 a few machines of the 18th Wing wer specially detailed for defence against air raids, and in Februar 1916, when the responsibility for home defence was taken ove by the War Office, No. 19 Training Squadron, in addition to it training duties, was entrusted with the defence of London agains enemy aircraft attacks; in addition, detachments each consistin of two B.E.2c. machines were stationed at various points aroun the capital.

The systematic training of night flying pilots was not com menced at Hounslow until the armament and fittings for nigh flying were standardised.

The first home defence Squadron (No. 39) was formed in May 1916, and by the end of the year 11 home defence squadrons an one night training squadron had been formed and distribute throughout England.

During 1916 the squadron responsible for the defence of Lon don accounted for five Zeppelins, and the squadron protecting th Tyne and Tees brought down one.

A home defence Wing was formed in September, 1916, and i April, 1917, on the formation of the northern home defence Win at York, the existing home defence Wing became the the hom defence Group. This was later expanded and finally be came the 6th Brigade. The organisation of this Brigad now consists of six wings and 18 Service squadron in addition to 10 night training squadrons, four of whic are night bombing squadrons. Its duties are: The aeria defence of England and South Scotland, co-operation wit coastal batteries, the training of night flying pilots, and th formation of night fighting squadrons for the Expeditionar Forces. These night fighting squadrons had the valuable dua effect of reducing the enemy bombing of our back areas i France, and at the same time forming a first line of air defenc against aerial attack on the British Isles.

The searchlight and anti-aircraft gun defences of London wer

FRENCH AVIATION IN 1928.—Some Officers and N.C.O. pilots of a fighter squadron belonging to the "3me Regiment d'Aviation" stationed at Chateauroux. The machine is a Nieuport-Delage 62 single-seat fighter (500 h.p. Hispano-Suiza engine).

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Simmonds Aircraft, Ltd., Southampton.

at first under the control of the Admiralty, but in August, 1917, it was decided to place these and the aeroplane defences under a single command.

The London Aircraft Defence Area was accordingly formed under a general officer and the results emphasise the importance of co-operation between all units of anti-aircraft defence.

7. Development of Special Functions.

Air Fighting and Development of Armament.

In the early days of the war machines were either entirely unarmed or the pilot carried a revolver, service rifle, or Winchester repeater. Some German machines carried machine guns in August, 1914, and the R.F.C. first fitted an aeroplane with a gun in September. Since then continual progress has been made in this direction. The types of machine-gun fitted are the Vickers and the Lewis, of which 19,500 and 18,400 respectively are in use in the R.A.F. to-day. The rate of fire of these guns has been greatly increased since their introduction: in the case of the Vickers from a normal 550-600 rounds a minute to 1,000, and in the case of the Lewis from 500 to 700 a minute. Synchronising gears have been invented, enabling the gun to be fired through the propeller at its full rate of fire. Continual improvements in the mountings have been devised both for the pilot and the observer, so as to bring the guns into the best possible positions for fighting, and also for rectifying faults and stoppages. A further great improvement has been the substitution of metallic disintegrating links for the original webbing belts used with the Vickers gun.

In addition to machine-guns, continual experiments have been carried out with guns of considerably larger calibre, firing a shell weighing over a pound. Heavy armament has now reached a stage of definite equipment and a certain number of machines in the field have already been fitted with a 37-mm. gun firing a 1½-pdr. shell.

Sights are now compensated to allow for the speed of our machines as well as that of the enemy, and illuminated sights have been produced for night work.

Air fighting called for the development of special ammunition, and a number of types of incendiary, tracer, and armour-piercing bullets have been produced and supplied in addition to the standard bullet.

Owing to the great cold of the altitudes at which pilots must now fly (20,000 feet and over) it has been necessary to make special heating apparatus both for the pilot and the engine. This apparatus is used in all night flying squadrons. A further difficulty arising from the rarefaction of the atmosphere at these heights has been overcome by the use of oxygen apparatus, which enables pilots to do their work under conditions which would otherwise be insupportable. At the other end of the scale is the low flying machine whose duty is to co-operate directly with the infantry and tanks in action and to attack, with bomb and machine-gun, enemy trenches and troops on the march or concentrating for an attack. For work of this nature, which is carried out from a height of a few hundred feet, an armoured machine has recently been devised.

The development of fighting in the air proceeded very rapidly. The first recorded combat occurred in September, 1914, when, in spite of the rudimentary armament, a total of five machines was brought down. By the middle of 1915 fighting in the air had become a recognised feature in operations, and since then it has steadily increased in intensity. The tendency has been to eliminate the single combats of the early days in favour of battles between patrols, and, in many cases, between large formations of machines, as many as 70 or 80 being engaged at one time.

Reconnaissance and Photography.

The original and, at first, the only duty of the aeroplane in war was reconnaissance and the earliest reconnaissance reports were of the utmost value. The information gained immediately prior to and during the retreat from Mons in 1914, was of the greatest possible assistance to the British and French Armies. The effect of regular, rapid, and accurate reconnaissance at once made itself apparent.

With the development of trench warfare, it became necessary to supplement reconnaissance reports by full information as to the position of enemy trenches and the location of his batteries. In November, 1914, the first successful aerial photograph was taken of the village of Neuve Chapelle. During the early experimental stages photographs were taken at an altitude of 3,000 feet, but the rapid development of anti-aircraft fire has forced the aerial photographer to an altitude of 22,000 ft.

During the first month that the photographic section operated in France only 40 negatives were taken. During October, 1918, 23,247 negatives were exposed and approximately 650,000 prints were issued. A high standard of photographic work has been reached, and whole areas of country, lines of railway, and trench systems have been photographed and accurate maps prepared.

The photographic section in 1914 consisted of two officers and three other ranks. Their outfit comprised two cameras and a portable box of developing chemicals. The photographic personnel at the present day consists of 250 officers and 3,000 other ranks, distributed throughout all theatres in which photographic work is carried out, and a large training school of photography has been formed at Farnborough. Up to September of this year as many as 5,287,826 prints of aerial photographs had been issued by the Air Service in the field.

Artillery Co-operation and Wireless.

It was realised from the first that one of the most important duties of the aeroplane would be co-operation with the artillery, and various methods of communication between machines and batteries or ships were devised. At first, signals were passed by evolutions of the machine over the target, and later by signal lamps or smoke balls fired from Véry pistols. These, however, involved great delay and trouble in returning from target to battery, as signals were only visible at close range.

At the outbreak of war the use of wireless telegraphy in connection with aircraft was in its infancy; a certain amount of experimental work had been carried out, but no standard types of apparatus had been adopted. Only one of the machines which left with the original Expeditionary Force was fitted with wireless apparatus, which was not employed until some stable condition was reached on the Aisne, when work in conjunction with the artillery was started. From this time onwards wireless grew very rapidly, and every battery was gradually equipped with a wireless receiving station; at the end of 1916 there were about 2,000 Air Service wireless operators and mechanics, and by the end of 1917 this number had increased to approximately 3,760.

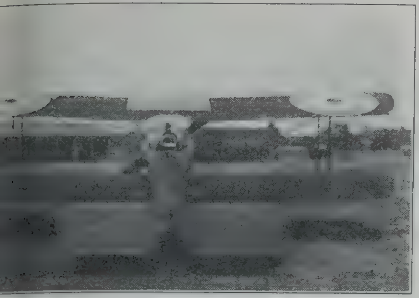
The earliest experiments in wireless telephony were carried out between Farnborough and Brooklands, but it was not until 1917 that anything like an efficient set was designed and demonstrated in the air.

About this time, night bombing machines in France (F.E.2. b's) were fitted with C.W. transmitters, and this means of communication, which had a range of about 75 miles, proved of great value in reporting lighted enemy aerodromes and other suitable targets.

At the present time there are about 80 C.W. wireless stations

1918—1928.—A D.H.9a (Liberty engine) of 39 (Bombing) Squadron, R.A.F. A variant of a 1916 design and still in use.—(*R.A.F. Official photograph.*)

1918 PROGRESS 1928



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Contractors to Air Ministry and Foreign Governments,
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maintained by the R.A.F. in France alone, providing communications between various units in the field. There are also several hundred battery stations.

To meet the steadily increasing demands for trained officers and operators, a training school was started in 1916, with about 30 officer pupils and 500 other ranks. This school has now 152 officers and 2,400 other ranks under instruction.

The wireless branch now consists of approximately 520 officers and 6,200 other ranks.

Bombing.

In the early days of the war pilots sometimes carried a few small bombs to be dropped by hand as opportunity offered. The Germans made the first organised bomb raid on Compiègne during the retreat, but day bombing has now become a highly specialised operation, and the development of bombs and bombing aeroplanes has been carried to a high pitch of efficiency. The machines employed have steadily improved in range and weight-carrying capacity.

There has been a very great improvement in the size and destructive power of bombs, and progress in this direction has kept pace with the development of the lifting power of aircraft. Whereas in 1914 we were only using 20-lb. bombs, to-day, bombs weighing as much as 3,000 lbs. are in use.

High explosive and incendiary bombs are the chief types used, whilst others of special design are employed for anti-submari operations.

A special type of smoke bomb has also been evolved, which was very successfully used in the recent offensive in Palestine.

Bombing has been developed on all fronts, both in the form of organised raids by day and by night for short or long distances, and also as one of the principal weapons for use against troops and other ground targets by our low-flying machines.

8. The Aerial War Effort of the Dominions.

General Survey.

The assistance rendered—especially in personnel—by the Dominions to the air forces of the Empire during the war has been fully proportionate to that given to the land forces. In 1915 the Dominion Governments, foreseeing the inevitable development of aerial co-operation in land and sea operations, initiated their support by offering to organise their own flying formations and by generally encouraging their younger men to volunteer and take up flying. Even prior to this many who aspired to qualify as pilots and observers were coming over to join the Royal Flying Corps and the Royal Naval Air Service, and during the whole course of the war service of the highest value has been performed by pilots from the Dominions who were destined to play an important part in building up and maintaining the air-fighting forces in every theatre of war. The following details give some idea of the extent of the efforts of the principal Dominions :—

Australia.

The inauguration of the Australian Flying Corps in 1915 was the result of an offer by the Australian Government to form a flying unit for co-operation with our Indian forces in Mesopotamia. Four flying officers and sixty other ranks arrived at Basra in May, 1915, and took part in the Kut operations. The first complete Australian squadron left Australia for Egypt in March, 1916, and later played an important part in the work of the 40th Wing in the Middle East Brigade. Three additional squadrons were organised for service in France, the first arriving there in August, 1917; these were responsible for the destruction of over 400 enemy machines between that time and the signing of the armistice. Further, four training squadrons were formed in England in which most of the Australian pilots were trained, the entire personnel being drawn from Australia or from the Australian Imperial forces in France. Some months ago a central flying school was created at Melbourne, and the aerc plane industry has now been definitely established in Australia.

The strength of the Australian Flying Corps in November, 1918 amounting to over 250 pilots and a total personnel of considerabl over 3,000, gives an impression of the part played by Australi in gaining aerial supremacy.

Canada.

In the early days of the war a large number of Canadian came over to join the Royal Flying Corps and the Royal Nava Air Service, and as many as 800 officers and cadets had been enrolled in the former corps up to the time when a training centre fo flying cadets was organised in Canada itself. A total of 1,23 Canadian officers have been seconded or attached to the Roya Flying Corps, Royal Naval Air Service, and the Royal Air Force and, since training in Canada was begun, over 4,000 Canadia cadets have been commissioned in the flying services, while th number of other ranks transferred and subsequently commissione is about 2,750. Altogether over 8,000 Canadians have served a officers in our flying services, and at the date of the armistic there were nearly 2,500 in the Royal Air Force, while 1,200 Canadian cadets were undergoing training in England and in Canada It may be added that several Canadian firms have maintained large output both of machines and engines; Canada was producing, in November, 1918, about 350 light machines and eight larg flying-boats per month.

New Zealand.

Over 300 New Zealanders have served as officers in the Britis Flying Services during the war, and at the time of the armistic there were 142 cadets in training.

The Dominion has presented six aeroplanes to the Imperia Government and lent two others.

Since the outbreak of war, two Schools of Instruction in Aviation have been established in New Zealand.

South Africa.

On the outbreak of war many South Africans came to Englan to take up flying, and by the beginning of 1916 nearly 2,000 wer serving in England or Egypt as probationary flight officer When the 28th Squadron Royal Flying Corps was sent to co operate with the Forces in East Africa, it was largely compose of South Africans, and came to be known as the South Africa Squadron.

The total number of South Africans who have been commi sioned in the Flying Services is about 3,000, who have take part in the campaigns in France, Egypt, Palestine, an Africa.

The Colony presented a large number of machines to the Imperial Government during the war.

9. Assistance to the Allies.

America.

The Government of the United States has paid a striking tribute to the British Air Service by adopting our system of training The first 500 American officer cadets to be trained went throug the School of Military Aeronautics at Oxford, subsequently graduating at various aerodromes in England. These officers forme the nucleus of American schools which were eventually starte both in the United States and in France. In addition to thi training of American pilots, 10 American squadrons were partially trained in Canada under a reciprocal agreement whereb Canada obtained the use of certain American aerodromes a seasons when weather conditions rendered some of the Canadia aerodromes temporarily unavailable. Four of these squadron completed their training in England, and were then attached to th R.A.F. in the field to gain experience under Service conditions fo

AN AUSTRALIAN EFFORT.—An enlargement from a cinema film of a flight of war-time S.E.5as, presented to the Australian Government by the British Government after the Armistice,—and only just washed out.

AVRO

1918 **1928**

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six to eight months. The remaining six went direct to the American authorities in France. In all, about 700 American pilots have passed through our schools and graduated at our aerodromes.

An agreement was also entered into under which a pool of American mechanics up to a maximum of 15,000 at a time was maintained in England. This arrangement was mutually advantageous, as, while relieving the demand for skilled tradesmen in the R.A.F., it also assisted the Americans to train their own squadrons for service in the field. This personnel, coming from America untrained, was attached to training units for three to eight months, being then sent to France from time to time in the form of complete squadrons until a total of 59 squadrons was reached in accordance with the demands of the American Command in France.

We have also supplied large numbers of aeroplanes of modern standard type, and when the question of producing a standardised engine was considered, every facility was given and all our experience placed at the disposal of the American Government, with the result that the Liberty engine was evolved. Some 95 officers were sent out to the United States to assist in an advisory capacity, and a large number of American officers have both visited and undergone courses at most of the schools and training stations of the Royal Air Force. In addition, a very large amount of material, supplies, samples, drawings, and technical information was supplied to both the American Army and Naval Aviation Services.

FRANCE.

We have assisted the French Government to a considerable extent in training her pilots, more especially in aerial fighting. For this purpose four Gosport instructors together with four mono-Avro aeroplanes were sent to France. We have supplied 48 complete machines and various new types of engines to the French Government, and an order for 150 Sunbeam engines is on the point of completion.

About 600 Hythe gun cameras were also supplied during 1917-1918 to the French schools for training purposes.

French officers have constantly visited this country with a view to studying our methods, and have been given every facility for visiting schools, training centres, and technical establishments.

ITALY.

Immediately after the Italian retreat in November, 1917, four British aeroplane squadrons were sent to the Italian Front to co-operate with the Italian Air Service and with the British Forces in Italy; these four squadrons have been maintained and a fifth squadron has recently been added.

The brief record of the work performed by these squadrons, given in the Appendix, illustrates the valuable assistance they have rendered to our Ally.

During 1918 the Italian Government were supplied with 150 Vickers guns each month, and with upwards of 2,000 Lewis guns.

A number of Hythe gun cameras have been sent out, and between 200 and 300 sights and lenses, as well as photographic chemicals.

BELGIUM.

In 1916 a number of Sopwith 1½ strutters were provided by the R.N.A.S. In 1917, 22 more machines of this type were supplied, and 22 R.E 8s for artillery co-operation. In 1918, 36 "Camel" and 18 D.H.9 machines were furnished to the Belgian Aviation Corps.

GREECE.

The Greek Govrnment have been supplied with 20 seaplanes, 40 D.H.6 machines and 6 Sopwith "Camels," together with complete equipment and transport, had been allotted and were ready for dispatch, but have been held back owing to the cessation of active hostilities.

EXPANSION OF MOTOR TRANSPORT.

Motor Transport. (All Types).	R.F.C. Only.				Roya Air Force.
	August 1914.	August 1915.	August 1916.	August 1917.	October 31, 1918.
On charge	320	2,469	5,282	8,584	23.260

SQUADRONS MAINTAINED.

—	Service.		Training. (1 Training Depot Station reckoned as 3 Squadron		
	August 1914.	October 31, 1918.	—	August 1914	October 1918.
Western Front	4 (R.F.C.)	84 & 5 flights	Home...	1 R.F.C)	174
Independent Force... ...	...	10		2 (R.N.A.S.)	10
5 Group... ..	...	3	Egypt...	...	
India	...	2	Canada	...	15
Italy	...	4			
Middle East ...	...	13			
Russia	...	⅓			
Home Defence	...	18			
Naval Units ...	1 R.N.A.S.)	64			
Total	5	198⅓ & 5 flights	...	3	199

RUSSIA.

In 1916 a mission was sent to Russia to assist in trainin and organising the Russian Flying Corps, and during th latter part of 1916 and during 1917 Russia was supplied wit 251 aeroplanes.

In May, 1918, orders were issued for the dispatch of a R.A contingent in conjunction with a special mission which was be sent to Northern Russia to operate from Archangel. The For consisted of 8 D.H.4 (R.A.F.3a) machines with a complement personnel and stores. On arrival at Archangel sufficie machines were collected from those which had previously be sent to Russia to form two squadrons of Nieuports and strutters.

In August, 1918, reinforcements were dispatched to Archang consisting of a proportion of British officers, N.C.Os, and me a wing headquarters, an Intelligence Section, one flight R.E.8s, and two Repair Sections for engines and aircraft respe tively. On November 12th, 1918, a further reinforcement of s Sopwith scouts and a six months' supply of stores were di patched.

JAPAN

Several officers have been undergoing courses on aeroplan and seaplanes.

BRAZIL.

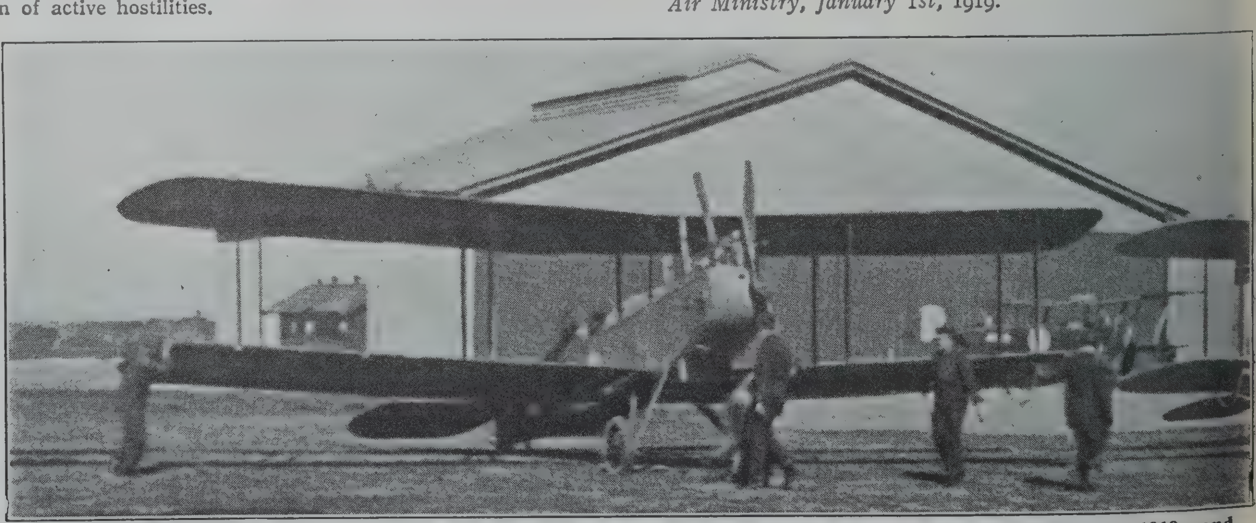
Seventy-seven complete machines and 100 Le Rhône engin have been supplied.

Several officers have graduated as pilots under the tuition our instructors. Two flying boats have been supplied to th Brazilian Government.

ROUMANIA.

Several officers have been given instruction and have grad ated as pilots. Twenty Sopwith machines have also be supplied.

Air Ministry, January 1st, 1919.



IN AUSTRALIA, 1928.—An enlargement from a cinema film of a D.H.9, presented to Australia in 1919, and still in use.

There is an air cooled ARMSTRONG SIDDELEY engine for every class of aircraft.

**From 80 to 750 h.p.
and from 5 to 14 cylinders.**

ARMSTRONG SIDDELEY MOTORS
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FLOWN AND KNOWN ALL OVER THE WORLD

A72.

SOME GERMAN WAR STATISTICS.

By Erik Hildesheim.

The "Illustrierte Flug-Welt," of Leipzig, publishes a record of the German aerial arm during the war, based upon the information supplied in a paper, read before the leading body, the Aero Club of Germany (formerly the Imperial) in commemoration of the fallen pilots as a memento of their deeds and the duties of those left. The article was published on the day of the death of Boelcke (Oct. 28th), whom the Germans consider, by the way, as their biggest war pilot and good comrade. Richthofen being held for a good marksman, though a poor pilot in landing, having maintained and utilised the squadron discipline of his sub-officers to advantage.

Personal.

At the outbreak of war the German aerial force was composed of 41 flight sections, each numbering six aeroplanes, and of eight flight parks, being mobilised on August, 1914. Against which figures rank in 1918 450 units on active service, 309 of which were flying ones; the flight sections were composed of nine aircraft, while the fighting squadrons (Jägd Stäffeln) numbered 18 aeroplanes. The record of development was as follows :—

August, 1914	49 units,	out of which 41 flew
January, 1915	73 units,	out of which 54 flew
January, 1916	137 units,	out of which 102 flew
January, 1917	237 units,	out of which 191 flew
January, 1918	346 units,	out of which 265 flew
End of 1918	450 units,	out of which 309 flew

These active service forces were supported by :—

1914	18 home units
1915	20 home units
1916	31 home units
1917	47 home units
Start of 1918	77 home units
End of 1918	103 home units

Out of the 103 home units there were 16 flight reserve departments, 32 flying schools, 7 flight observer schools, 1 bomb-dropper teaching department, 1 wireless training section, 1 gun practice school for pilots, and 2 fighting squadron (Jägd Stäffeln) schools, stationed in the theatres of war.

The number of flying personnel, engaged on the front, amounted in 1914 to about 500, and in 1918 to about 5,000 officers, sub-officers, and privates.

A reserve could scarcely be found at home in 1915. In 1918 about 80,000 men were ready to replace the losses, out of which 5,000 men were being trained as pilots. Till the end of the war the front required every month a replacement of about 15 per cent. of the flying personnel, *i.e.*, 750 men (pilots, observers and gunners).

Aircraft.

In August, 1914, 218 aeroplanes could be mobilised; in the autumn of 1918 5,000 aircraft were engaged on the front. The manufacture of aeroplanes amounted up to Jan. 1st, 1919 (the paper was read on Oct. 28th, 1918, and published in December!) to 47,637, out of which 598 were manufactured before August, 1914. The number of motors supplied totalled 40,449.

The performance figures of the aeroplanes have, of course, improved highly. In 1914 it took the "Dove" 40 to 50 minutes to climb to the prescribed war altitude of 1,500 metres, in 1918 5,000 metres were climbed in 20 minutes. The height of flying was in 1914 1,500 to 2,000 metres. In 1918 the height varied according to the task, altitudes of 6,000 metres were sought for distance reconnaissance and the fighting pilot climbed still higher to dive down on his victim. In 1914 the load carrying capacity was small (heavy observers were not well liked). In 1918 the G class aircraft transported the 1-ton bombs, and the giant aircraft a still greater weight, and speed had increased from 80 kilometres to 160 kilometres to 180 kilometres per hour.

Of works there were available in 1914 8; in the autumn of 1919, 53.

In August, 1914, 109 aeroplanes and 78 motors were manufactured, and in October, 1918, 2,195 aeroplanes and 1,878 motors.

In the autumn of 1918 48,000 workmen were engaged in these works; this number does not include the workmen of the 53 sub-contracting establishments, when the total figure may be calculated at 100,000.

The amount of fuel required per month amounted on an average to :—

In 1914	600,000 kilos petrol
In 1915	3,000,000 kilos petrol
In 1916	4,500,000 kilos petrol
In 1917	5,500,000 kilos petrol
In 1918	7,000,000 kilos petrol

The total consumption amounted to about 232 million kilos petrol and 30 million kilos lubricating oil.

The account of the bombs dropped works out as follows :—

No. of 12 kg. bombs ...... 855,280 pieces of a total weight of 10,263,350 kg.

No. of 50 kg. bombs ...... 167,225 pieces of a total weight of 83,612 kg.

No. of 100 kg. bombs ...... 34,356 pieces of a total weight of 3,435,600 kg.

No. of 300 kg. bombs ...... 15,386 pieces of a total weight of 4,615,800 kg.

No. of 1 ton bombs ...... 710 pieces of a total weight of 710,000 kg.

Totalling 1,072,975 pieces of a weight of 27,386,010 kg.

Aerial Photography.

In 1914 the number of aerial cameras numbered about 100 with a size of the plates of 9 by 12, focus 25 cm. In 1918 the stock amounted to about 2,000 pieces on active service of varying systems with focus up to 1.2 me. and with the size of pictures up to 24 by 24 cm., with the most different boxes and films of 100 continuous pictures.

As daily performance it was considered to take : In May, 1915, 400 photos; in May, 1917, 1,500 photos, and in May, 1918, 4,000 photos.

At a conservative calculation alone a surface of 24,000 square km. was covered on the Western Front in 1918 (the area of Saxonia amounts for comparison to 2,500 square km.). Without fear of exaggeration it may be assumed that the photographed ground during the war comprises six times the area of Germany, being 540,000 square km. in size.

Wireless Telegraphy.

In 1914 the equipment did not include wireless; in 1918 each C class aeroplane had a wireless sender installed. Half of the flight units could change from sending to receiving apparatus, the orders for the aviators being now normally submitted by wireless.

Armament.

In August, 1914, the armament consisted of a self-loading pistol; during the winter between 1914 and 1915 the self-loading gun was introduced; during 1915 the observer was equipped with a gun. 1916 saw the adopting of the synchronised gun, and by 1917 all aeroplanes were armed with two guns.

Over the front 7,000 machine guns fought, in 1918, with numerous anti-aircraft guns, and various services in the aerial activities required special ammunition, such as different coloured lights and blazing and igniting shots. The machine guns were equipped with distance aiming telescopes.

Comparative Figures.

The military weekly "Journal" states the opponent forces to have been composed as follows :—

In the time between 1914 and 1918 85,317 aeromotors and 67,982 aeroplanes were completed in France. (Note the opposite relation of more aeroplanes than engines being turned out in Germany.) The steadily increasing figures of output work out thus :—

	No. of Aeroplanes	Aeromotors	Workmen
1914	——	3,481	——
1915	3,460	6,849	12,650
1916	7,552	13,874	30,960
1917	22,751	20,805	68,920
1918	34,219	40,308	186,000

France started the war with 100 aircraft, having in November, 1918, 4,500 aeroplanes engaged on active service, another 4,500 aircraft ready, while 2,200 aeroplanes were engaged in the training camps. To the American Army France supplied 4,500 aeroplanes and 6,000 motors, to England 2,000 engines. During 1918 an aeroplane was completed each quarter of an hour, a motor every ten minutes. Most of the 186,000 workpeople were women. At the time of the armistice France possessed 12,919 pilots and observers.

England had in August, 1914, a total stock of 179 aeroplanes, 56 of which were sent to France. In 1918 12,000 land-going and 550 seaplanes were employed abroad. On the Western Front served 82 squadrons, 31 special ones; on other theatres of war 10 squadrons. Three hundred aircraft works were in full swing, the 50 largest of which engaged 60,000 workers; altogether a woman body of 14,345 served in the aircraft trade.

From 1915 to 1917 the number of works doubled. By 1918 it had quadrupled. The total production amounted to 50,000 aeroplanes. In 1918 there existed 60 flying schools, the number of the pupils amounted to 30,000, 21,957 of which were partly trained.

The personnel numbered, in 1914 197 officers, 1,647 privates and in 1918 27,906 officers and 263,842 privates. The present peace force numbers 5,300 officers and 54,000 privates, with 102 squadrons of 18 aeroplanes each.

Before the war the total amount expended upon the Army was 28 million pounds; to-day the Budget of the Air Ministry amounts to 66½ million pounds for the running year, three millions of which are to be spent on civil aviation; the later yearly amounts are to be 25 million pounds.

America possessed 24 army pilots in 1914, and had in 1918

DIEU ET MON DROIT
BY APPOINTMENT
TO HIS MAJESTY THE KING

RECORD LONDON TO BERLIN LIGHT PLANE FLIGHTS

CAPT. NEVILLE STACK,
piloting an
AVRO AVIAN
light aeroplane fitted with a
CIRRUS
Mark 3 ENGINE

flew from Croydon to Berlin on October 19th, a distance of about 620 miles, in 4 hours 52 minutes, thus averaging 127 miles an hour.

This is a record speed for a long-distance flight in a light aeroplane.

MR. H. W. R. BANTING
piloting a
SIMMONDS SPARTAN
light aeroplane fitted with a
CIRRUS
Mark 3 ENGINE

carried a passenger from Croydon to Berlin on Oct. 24th in 7¼ hours, and returned on October 27th in 5 hours 55 minutes.

These two flights constitute the longest non-stop light aeroplane passenger flights on record.

Following the usual precedent when achievements of speed and reliability are attempted — and accomplished — the lubricant chosen was

WAKEFIELD
CASTROL
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about 20 flight units engaged on the Western Front. The reserves being trained and formed and the activities of the industry were high, but no figures are yet to hand.

Russland had a flight section for each army corps and headquarters.

Only during the offensive in Italy the aerial forces of that country were encountered, their number to be calculated at 50 units.

Some Developments.

Next follows an account of the various special duties, into which the aerial arm developed and revealing nothing new, as the opponent side had seen the same evolution, perhaps with the exception of the contour flying, where the Germans distinguish between those flying low to participate direct in the ground fighting and those, doing it only to establish communication with isolated front-line trench sections, dropping in them in flight supplies, news, mail, papers, and ammunition.

The Jägd Stäffeln are stated to have started with the successes of Capt. Boelcke in Pirschflügen, developing next from single performances to formation and squadron flights. In 1917 the unit engagement had already arrived on the British theatre of war, a close combination being here the main object. The air fight of Richthofen's squadron by Le Chateau in February, 1918, is quoted as a good instance, having had a duration of 30 minutes. The English pilots are stated to have fought refractorous and determinedly, the French were sly but without endurance, 13 opponents to have fallen and one German aeroplane to have been lost.

Victories and Losses.

The General commanding the aerial forces had from September, 1915, to September, 1918, acknowledged 7,425 successful air engagements, 358 of which were on the Eastern Front, and a loss during the same period of 2,158 aircraft, 189 of which were suffered on the Eastern Front. Out of the missing aeroplanes another 1,000 must be added. Six hundred and fourteen opponent kite-balloons were shot down in flames by the Germans. The final enemy losses are not known yet.

Of France the losses are reported as follows: On active service, 1,945 killed, 2,922 wounded, 1461 missed, 70 per cent. of which must also be reckoned to have been killed. At home 1,227, the total number amounting thus to 7,555, which works out at 61 per cent. of the flying personnel.

The British losses have also been severe, rumours tell of 50 per cent. of the flying personnel. And though not trained for fighting the Americans have gallantly suffered a high percentage of losses.

The German losses were these: At home, 584 officers and 1,378 sub-officers and privates. On active service, 1,765 officers and 1,741 sub-officers and privates; 1,423 officers and 1,207 sub-officers and privates were wounded, 1,364 officers and 1,379 sub-officers are missing, 50 per cent of which must be considered killed. Thus the total losses at the front work out at 3,870 officers and 3,837 sub-officers and privates, including 27 out of the number of 72 having been awarded the "Pour le merite."

THE WILKINS ANTARTIC SURVEY.

Sir Hubert Wilkins' expedition, which is to attempt an aerial survey of the Antarctic continent, sailed from Montevideo for Deception Island on the whaler *Hektoria* on Oct. 24.

THE RETURN OF THE "GRAF ZEPPELIN."

The airship *Graf Zeppelin* which left Lakehurst, New Jersey, at 01.54 hours on Oct. 29, reached Friedrichshafen without untoward incident on the morning of Nov. 1, when a successful landing was made at 7.15 a.m., 71 hours after leaving Lakehurst.

On the return journey the course followed was approximately the direct steamship route from New York to the English Channel until some 500 miles West of Ireland, where a detour to the southward was made to avoid bad weather. This took the airship over the Bay of Biscay and across France.

Friedrichshafen was reached at 4.35 a.m.—giving 68⅓ hours as the actual flying time, but the landing was delayed until daybreak.

The weather was very rough at the beginning of the flight. The ship was at one time blown backwards, and Dr. Eckener is reported to have said that it was plainly providential that they had not been forced down onto the sea. Fortunately the wind soon veered to the north and by the next evening had dropped considerably. On the next night (Oct. 31) stormy weather was once more met over the Bay of Biscay.

As a result of the return trip to the United States and back Dr. Eckener is reported to have expressed the opinion that the *Graf Zeppelin* is not a suitable type of ship for passenger service over the Atlantic. Greater structural strength is required and above all a higher speed is necessary for any regular service on such a route.

This very frank admission of Dr. Eckener's does him the greatest credit, and rightly interpreted, should inspire still greater confidence in his future work in the airship cause.

Naturally the cheaper newspapers paid more attention to the story of the stowaway than to the remarkable performance of the ship and her navigators. There is therefore a certain satisfaction in learning that the stowaway was a fake, who had been stowed away by enterprising journalists, who may or may not have exercised an exuberant sense of humour in thus pulling the collective legs of their sensation-mongering rivals.

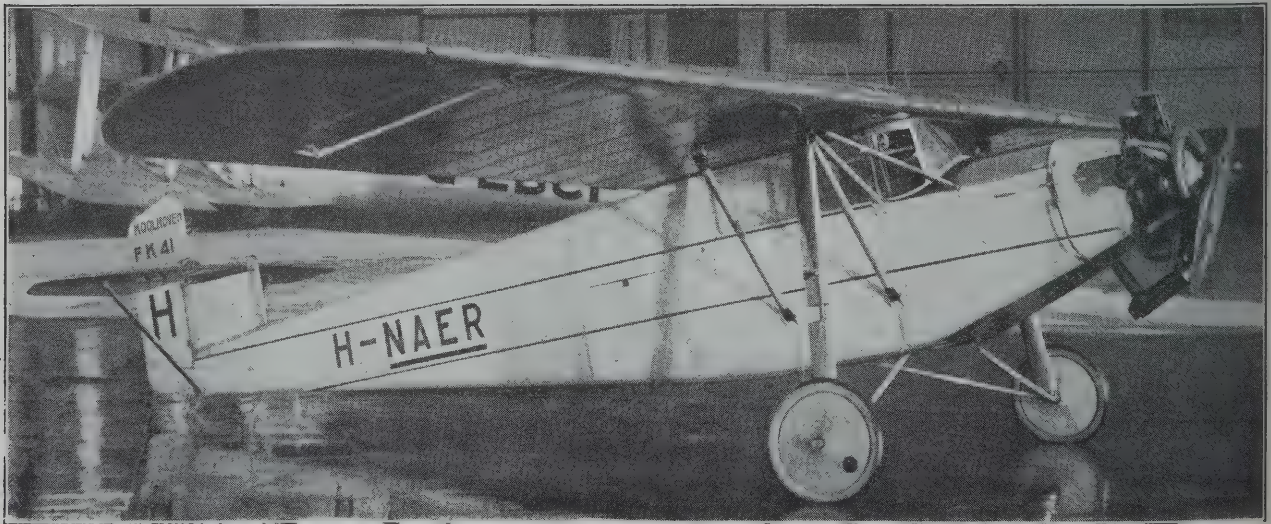
THE "GRAF ZEPPELIN" VISITS BERLIN.

The *Graf Zeppelin* left Friedrichshafen in the early morning of Nov. 5 and reached Staaken at 09.35 hours. A strong gusty wind gave trouble in getting the ship to the mooring-mast, and caused a delay of an hour before the ship could be secured.

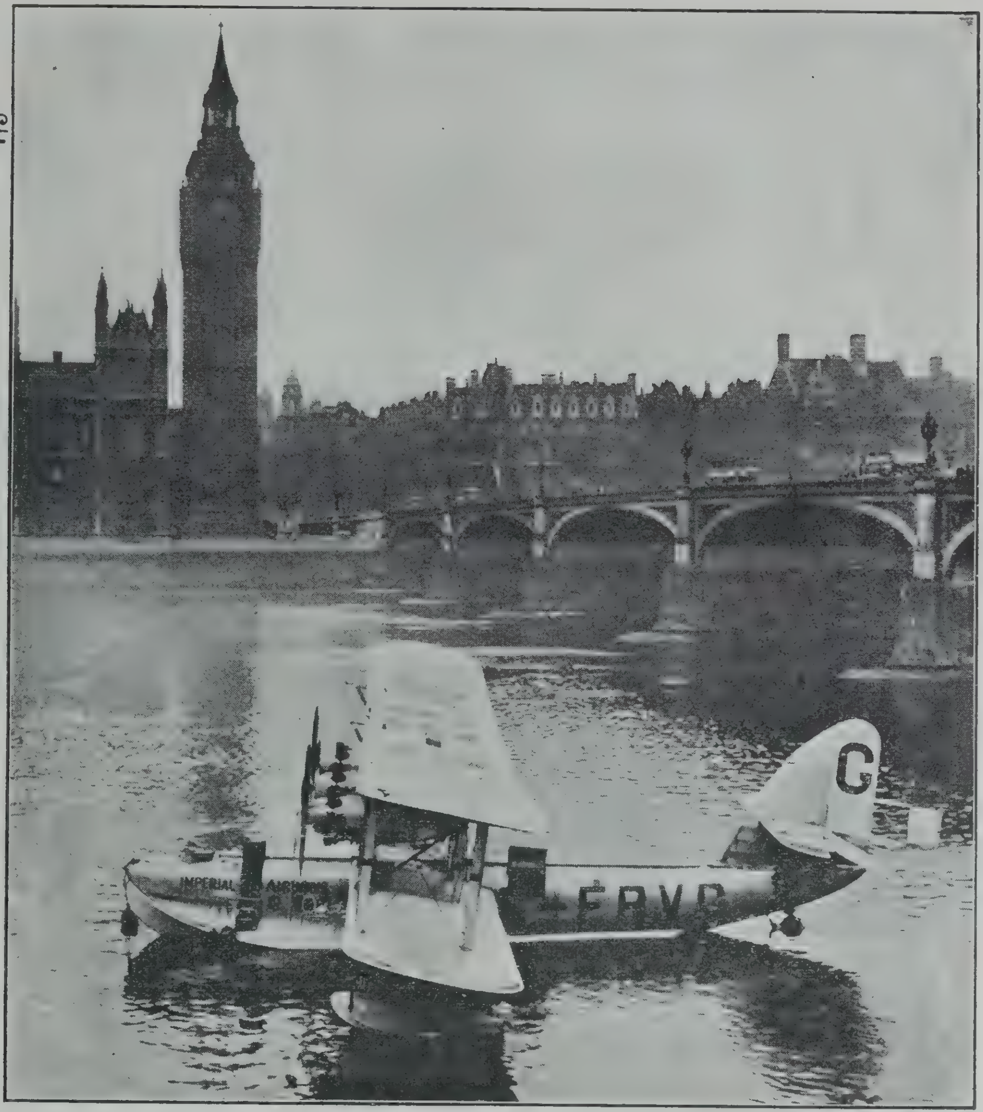
(Apparently the mast at Staaken is not provided, as are the British mooring masts, with mechanical winches to haul the ship into place, but requires the ship to be man-handled into position.)

After the ship was moored Dr. Eckener, accompanied by some of his officers and crew, was driven to the President's Palace and were received and congratulated on the flight to New York and back by Marshal von Hindenburg.

Dr. Eckener said that they had set out to fly the *Graf Zeppelin* to America and back as a commercial ship. Their experiences proved that the ship left room for improvement but had strengthened their faith in the future of the airship. They knew what improvements were required and were satisfied that they would be able to make them.



THE SPORTSMAN'S COUPE.—The Koolhoven F.K.41 monoplane (70 h.p. Siemens engine) at Croydon, where it has been demonstrated by Mr. M. L. Bramson.



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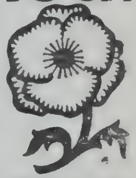

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THREE BRISTOL 'JUPITER' ENGINES

The "Calcutta" has demonstrated its ability to take off water with full load on two engines only. Time 42 seconds; headwind 10 miles per hour.

A repeat order has been received from Imperial Airways, Ltd., for a third "Calcutta" all-metal flying boat.

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THE ROYAL AIR FORCE.

The London Gazette.

October 30.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—Sub-Lt. M. T. Cowin, R.N., is granted a temp. comn. as a Flg. Off. on attachment for duty with the R.A.F. (Oct. 21); Flg. Off. H. E. E. Weblin is granted the hon. rank of Flt. Lt. (Oct. 31).; Plt. Off. H. G. Wheeler is promoted to the rank of Flg. Off. with effect from Sept. 15 and with seniority of June 11.

The following Plt. Offs. are promoted to the rank of Flg. Off. :—D. J. T. Haynes (May 15); P. F. G. Bradley, G. W. Monk, R. C. Hancock, J. E. Stuart-Lyon (Sept. 19); M. Fountain-Barber (Oct. 2); R. G. Forbes (Oct. 6).

Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., is restored to full pay from half-pay (Oct. 1).

The following Flt. Lts. are placed on the retired list at their own request :—The Hon. J. H. B. Rodney, M.C. (Oct. 14); B. C. H. Cross, D.F.C. (Oct. 15); H. E. Searson, D.F.C. (Oct. 19).

The following are transferred to the Reserve, Class B (Oct. 24) :—FLT. LTS.—F. W. Clarke, D. E. Ward. FLG. OFFS.—S. Herbert, E. S. Osborn, L. A. Parker. Flt. Lt. E. C. W. Fitzherbert, M.B.E., D.S.C., is transferred to the Reserve Class C (Oct. 24); Plt. Off. on probation D. A. Woolfe resigns his S.S. comn. (Oct. 19); Flt. Lt. M. H. Butler, D.F.C., relinquishes his S.S. comn. on account of ill-health, and is granted permission to retain his rank (Oct. 24).

STORES BRANCH.—The following Plt. Offs. on probation are confirmed in rank and promoted to the rank of Flying Officer (Oct. 15) :—C. M. P. Hartley, T. A. Head.

MEDICAL BRANCH.—Flt. Lt. (Hon. Sq. Ldr.) C. A. Meaden resigns his temp. comn. and is permitted to retain the honorary rank of Squadron Leader (Oct. 22).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—Flg. Off. L. A. Parker is employed with the Regular Air Force for a period of two years (Oct. 24); H. H. White is granted a commission in Class C as Flg. Off. (Oct. 30). The following Plt. Offs. are promoted to the rank of Flg. Off. :—G. A. R. Malcolm (Oct. 26); R. P. S. Taylor (Oct. 27); J. P. Rae (Oct. 28). The following Plt. Offs. on probation are confirmed in rank :—C. R. S. Smith (June 13); J. I. Muir (Oct. 24).

Flg. Off. C. W. Carleton, A.F.C., is transferred from Class A to Class C (Oct. 12); Flg. Off. J. R. W. Alexander is transferred from Class A.A. to Class C (Oct. 19).

The following Flg. Offs. relinquish their commissions on completion of service :—E. M. Ling (Oct. 24); C. D. Robertson, M.M. (Oct. 29). Flg. Off. V. F. R. Hill relinquishes his commission on completion of service, and is permitted to retain his rank (Oct. 24).

AUXILIARY AIR FORCE.

GENERAL DUTIES BRANCH.—Plt. Off. R. Faulds is transferred from No. 602, City of Glasgow (Bombing) Sqdn., to No. 600, City of London (Bombing) Sqdn. (Oct. 18).

Appointments.

Week ending Nov. 5, 1928.

GENERAL DUTIES BRANCH.—Squadron Leaders A. Gray, M.C., to R.A.F. ase, Malta, 27/10. E. B. Beauman, to R.A.F. Depot, Uxbridge, 17/10. W. G. J. Penderel, M.C., to No. 216 Sqdn., Middle East, 20/10. . Halley, D.F.C., A.F.C., to H.M.S. *Eagle*, 27/10.

Flight Lieutenants J. M. J. C. J. I. Rock de Besombes, to No. 21 Group H.Q., West Drayton, 13/11. E. B. Grenfell, A.F.C., to No. 100 Sqdn., Bicester, 22/10. G. A. H. Pidcock, to Air Ministry (Directorate of Training), 22/10. C. Crawford, to Armament and Gunnery School, Eastchurch, 5/9.

Pilot Officers F. T. K. Bullmore, to No. 10 Sqdn., Upper Heyford, 22/11. J. H. L. Dillon-Trenchard, to No. 407 Flight, Mediterranean, 25/10.

STORES BRANCH.—Flight Lieutenants A. Walters, to Air Ministry (Directorate of Equipment), 20/10. N. Robertson, to Air Ministry (Directorate of Equipment), 20/10.

Flying Officer R. G. Fussell, to School of Army Co-operation, Old Sarum, 4/12.

ACCOUNTANT BRANCH.—Flying Officer W. R. Donkin, to No. 504 Sqdn., Hucknall, 30/10.

The World's Speed Record.

An officially-timed attempt on the World's Speed Record was made at Calshot on Nov. 4. Flt. Lt. D. D'A. A. Greig, D.F.C., A.F.C., R.A.F., flying the Supermarine S.5 (Napier Lion engine) attained a speed of 319.57 miles an hour over the standard three-kilometre course for air speed records. This is the highest speed flown under official observation but does not give the five-mile margin required to establish a new record.

Flt. Lt. Greig made six runs over the course and the figures for the four chosen runs were as follows :— (1) 322.66 miles (519.23 kilometres), (2) 316.54 miles (509.43 kilometres), (3) 319.56 miles (514.285 kilometres), (4) 319.56 miles (514.285 kilometres).

Flt. Lt. Greig was in the air just over 24 minutes.

The trial was begun at 14.15 hours with a calm sea and a light wind of 10 to 15 m.p.h. from the South-West, but the last two runs were made with a freshening wind and by the time he alighted the sea was choppy.

The flights were timed by camera-guns as well as by the usual methods.

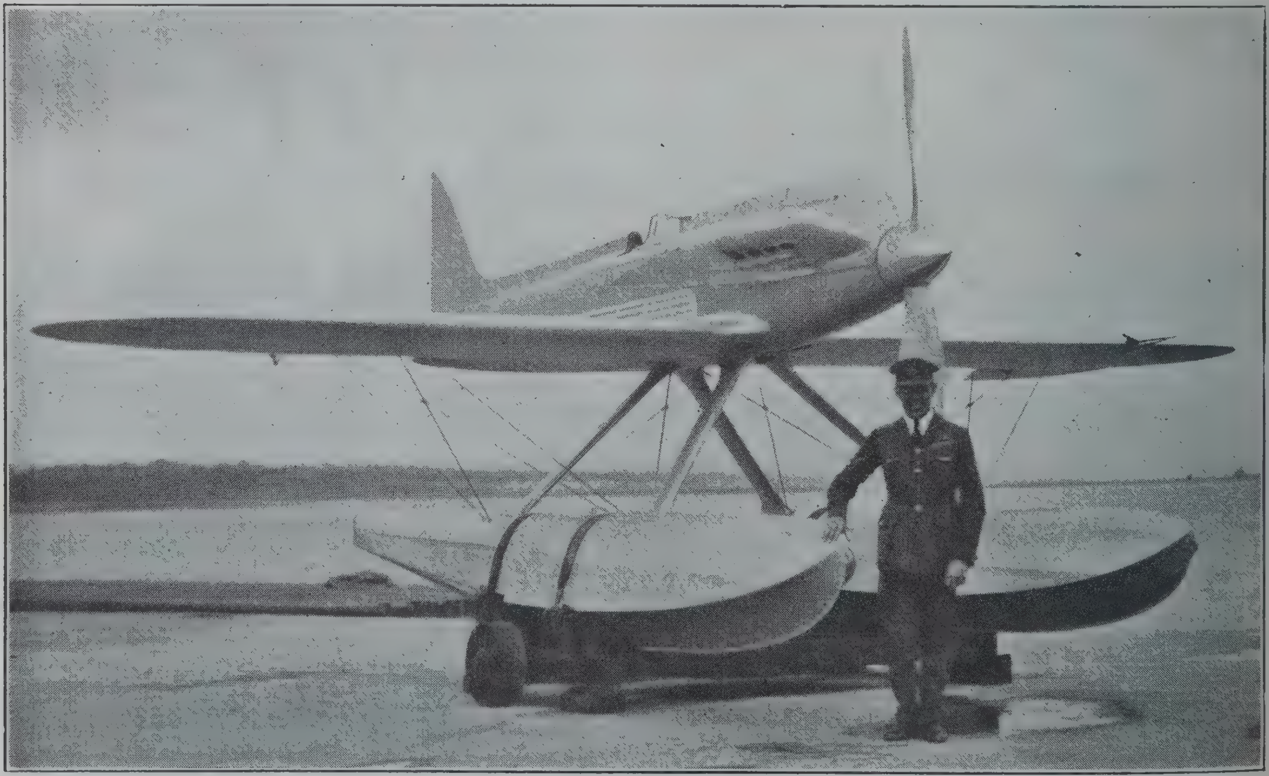
Official Timekeepers : Mr. A. G. Reynolds and Col. F. Lindsay Lloyd.

Official Observer for Royal Aero Club and the *Fédération Aéronautique Internationale* : Harold E. Perrin.

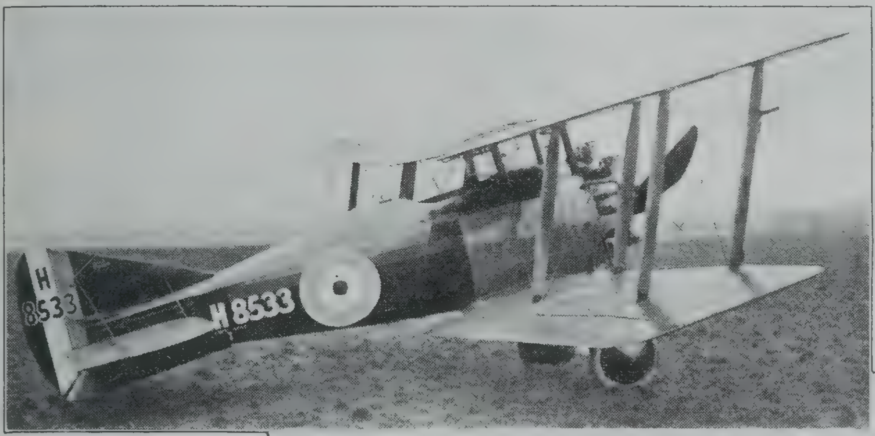
The existing record is held by Major Mario de Bernardi, with a speed of 318.464 kilometres per hour.

Flight Lieut. S. M. Kinkead.

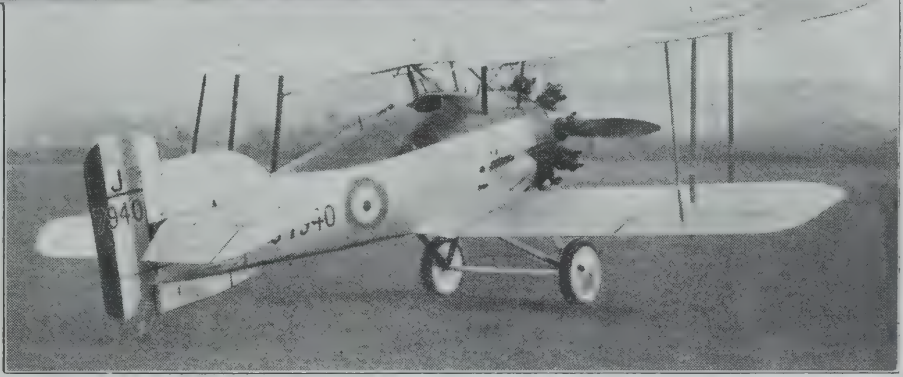
The memorial painting of the late Flt. Lt. Kinkead was presented to the R.A.F. Club on Nov. 5 by Marshal of the Royal Air Force, Sir Hugh Trenchard, who in a brief but appropriate speech said that he felt honoured to represent the numerous subscribers in handing over the painting to the trustees of the Club. He testified to that wonderful spirit



IN MEMORIAM.—Flt. Lt. S. M. Kinkead, D.S.O., D.S.C., D.F.C., who was killed at Calshot on March 12, 1928, while making attempts to beat the World's Speed Record.



THE NIGHTHAWK
(320 h.p. A.B.C.
Dragonfly
Engine).



THE GOLDFINCH
(450 h.p. Bristol
Jupiter VII
Engine).

1918——1928.

In 1918, the Gloster Aircraft Co., Ltd., having acquired the constructional rights of the "**Nighthawk**" single-seat fighter, were producing this type to the order of the Air Ministry at a rate of from 70 to 80 per month.

Since this date they have specialised in the production of high-performance single-seat fighting aircraft and have built a large number of such aircraft for the equipment of the Fighter Squadrons of the Royal Air Force. Among the more outstanding types may be mentioned the "**Grebe,**" the "**Gamecock,**" the "**Gorcock,**" the "**Guan**" and the "**Goldfinch.**"

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of Kinkead which was so prominent throughout his career in the Service, both in Peace and War. Furthermore, he stated, that he hoped that future members of the Club would appreciate Kinkead's magnificent spirit and that they would attempt to emulate his deeds.

Brig.-Gen. More, the Chairman of the Club, accepted the painting on behalf of the members, and in responding eulogised Kinkead's outstanding personality and congratulated Mr. Harcourt, the artist, on his masterpiece. The painting was very true to life.

The Chief of the Air Staff and Mr. Harcourt lunched with the Committee of the Club after the ceremony.

A large number of members attended the unveiling ceremony.

The Far East Flight.

The Far East Flight, R.A.F., which is stationed at Singapore, under the command of Group Captain H. M. Cave-Browne-Cave, D.S.O., D.F.C., left Singapore on Nov. 1 on a six-weeks' tour.

The itinerary is as follows :—Nov. 1 Kuching; Nov. 5 Labuan; Nov. 7 Puerto Princessa; Nov. 9 Manila; Nov. 16 Salomague; Nov. 17 Hong-Kong; Nov. 26 Touraine Bay; Nov. 28 Coconut Bay; Nov. 30 Bangkok; Dec. 5 Victoria Point; Dec. 7 Penang; Dec. 11 Singapore.

H.M.S. Hermes.

The aircraft-carrier *Hermes,* will leave Hong-Kong on Nov. 26 for a cruise to North Borneo and the Philippines. From Nov. 29 to Dec. 4 she will be at Jesselton; from Dec. 4 to Dec. 6 at Kudat; from Dec. 8 to Dec. 14 at Manila; and will return to Hong-Kong on Dec. 17

The R.A.F. Units in H.M.S. *Hermes* are No. 403 (Fleet Fighter) Flight, and No. 440 (Fleet Spotter Reconnaissance) Flight.

The Senior Air Force Officer is Wing Cdr. A. H. S. Steele-Perkins, O.B.E.

Leaving 'Iraq to the R.A.F.

The Baghdad correspondent of *The Times* in a message dated Nov. 2 states :—

> The first Indian regiment to enter Basrah in 1914, The 3rd Battalion, 5th Mahratta Light Infantry, is the last to leave the country. This regiment entrained at Baghdad last night to return to India.
>
> Its stay in 'Iraq has not been continuous, as it went to India after the Armistice and served for a time on the North-West Frontier, returning to Baghdad two years ago. No troops paid by the Imperial Exchequer now remain in 'Iraq other than the Air Force and the Assyrian Levies. The Levies' strength was lately much reduced when their headquarters were transferred from Mosul to Baghdad.

Extensions of Reserve Service.

The service of the following officers of the R.A.F. Reserve has been extended as follows :—

For five years.—(Class A.) : Flg. Offs. R. M. Bullock, E. B. Fielden, C. Kenney, C. R. McMullin, F. W. Marshall. *(Class C.)* : Flg. Offs. W. Alan, A. E. Ansell, H. C. Norman, S. H. H. Swanton.

For four years.—(Class A.) : Flt. Lt. L. R. L. Brown. *(Class B.)* : Flt. Lt. L. F. P. Bawn. *(Class D.)* : Flt. Lt. J. W. Harper.

For one year.—(Class A.) : Flg. Off. S. B. Croyden. *(Class C.)* : Flt. Lt. H. V. Stammers, D.F.C.

The service of the following officers of the R.A.F. Reserve has been extended to April, 1930 :—

(Class C.) : Flt. Lt. C. Fenn.

Service Aircraft at Civil Aerodromes.

An Air Ministry Order regarding the safety of Service aircraft landing on a civilian aerodrome states that where hangar accommodation is available it will be sufficient if the pilot places the aircraft in the hands of the aerodrome authorities, sees it put into a hangar, obeys any instructions which the authorities may give him and satisfies himself that the aircraft will receive the same protection as the civil aircraft at the aerodrome.

When hangar accommodation is not available the pilot should use his discretion as to what steps he should take to safeguard the aircraft. If he can satisfy himself that adequate provision is made at the aerodrome for night watchmen it would usually suffice to place it in the hands of the aerodrome authorities. If the arrangements are not, in the pilot's judgment, adequate, he should proceed to obtain a Service, or police guard. He should not demand a police guard if other adequate arrangements can be made.

If the pilot acts in accordance with these instructions he will not be held liable for any loss or damage which may occur after he has handed the aircraft over to the aerodrome authorities.

Wing Commander Shekleton.

Wing Commander Alexander Shekleton, D.S.O., whose appointment to command the Aircraft Depot, 'Iraq, is dated Oct. 20, 1928, was born in 1891 at Pietermaritzburg, Natal, and was educated at Oundle and the R.M.A. Woolwich. He entered the Royal Munster Fusiliers in 1910. He learned to fly on a Bristol biplane at Brooklands and his Royal Aero Club certificate No. 399 is dated Jan. 21, 1913. In May, 1913, he joined the Central Flying School for a course and was seconded to the R.F.C. in August, 1913.

He went to France with the R.F.C. in August, 1914, and was promoted Flight Commander in January, 1915. In April, 1915, he was promoted Captain, Royal Munster Fusiliers, and in January, 1916, he was promoted Squadron Commander with the temporary rank of Major. In June, 1917, he went to Egypt. He was promoted Wing Commander and temporary Lieutenant-Colonel in November, 1917, and Lieutenant-Colonel in April, 1918.

On April 11, 1918, the *London Gazette* announced his appointment to be a Companion of the Distinguished Service Order for distinguished service in the Field in connection with military operations culminating in the capture of Jerusalem.

In August, 1919, he resigned his Army commission on appointment to a permanent commission in the R.A.F. with the rank of Squadron Leader. In May, 1919, he was appointed to command the Aeroplane Experimental Establishment at Martlesham Heath and in April, 1921, he was posted to the Air Ministry, Directorate of Training. In June, 1923, he was promoted Wing Commander. In 1924 he served on the Central Trade Test Board and in September, 1924, he was posted to the Reception Depot, West Drayton, to command.

Wing Commander Steele-Perkins.

Wing Commander A. H. S. Steele-Perkins, O.B.E., whose appointment as Senior Air Force Officer, H.M.S. *Hermes,* is dated Oct. 19, 1928, was born in 1887 at Exeter and was educated at Eastman's Royal Naval Academy. He entered the Royal Navy as a Paymaster Cadet in 1905 and was promoted Assistant Paymaster in 1908, Paymaster Lieutenant in 1912, and acting Paymaster Lieut.-Commander in 1918.

In April, 1918, he was attached to the R.A.F. as Staff Officer, 2nd class, with the temporary rank of Major. In August, 1918, he was appointed Staff Officer at the Air Ministry with the rank of Lieut.-Colonel and in August, 1919, his name was removed from the Navy List on appointment to a permanent commission in the R.A.F. with the rank of Squadron Leader. He was made an Officer of the British Empire in 1919 for valuable services rendered during the War.

In January, 1921, he took over the command of the R.A.F. Record Office at Ruislip. In October, 1922, he was appointed to command the Aircraft Depot, Egypt, and in January, 1925, he was promoted to the rank of Wing Commander. In February, 1926, he was restored to the Home Establishment and posted to H.Q. Inland Area for Personnel Staff Duties.

Wing Commander A. G. De Courcy.

Wing Commander A. G. De Courcy, M.C., whose appointment to command No. 70 (Bombing) Squadron, 'Iraq, is dated Oct. 20, 1928, was born in 1894 at Plympton St. Mary, Devon, and educated at Glenalmond School, and the R.M.A., Woolwich. He entered the Royal Artillery in July, 1914.

He was attached to No. 4 Squadron, R.F.C., in France as an Observer from October, 1915, until April, 1916, when he was posted to Oxford for a course of flying instruction, and was seconded to the R.F.C. In June, 1916, he went back to France and in September, 1916, he was promoted Flight Commander and temporary Captain. He was Mentioned in Dispatches during the month. In January, 1917, he was awarded the Military Cross.

The *London Gazette* of that date reads :—

> For conspicuous gallantry in action. He has located numerous hostile batteries, and by directing the fire of our howitzers has been instrumental in destroying a number of them. On one occasion he drove off three hostile machines.

In May, 1917, he was awarded the Croix de Guerre (France) for distinguished service in the Feld and in June, 1917, he was promoted Squadron Commander and temporary Major.

In August, 1919, he resigned his Army Commission on appointment to a permanent commission in the R.A.F. In March, 1920, he was posted to No. 210 Squadron, Gosport, and in October, 1921, to the R.A.F. Base, Gosport. In 1922 he joined the Cambridge University Course in Aeronautical Engineering and passed the course as a specially qualified Engineering Officer entitled to the letter E* after his name in the Air Force List. In February, 1922, he received an Air Council letter of appreciation based on an appreciation by the Commander-in-Chief, Atlantic Fleet, of results obtained by the De Courcy system of range- and bearing-finding during the September-October, 1921, trials. In November, 1922, he received an Air Council appreciation, at the recommendation of the Committee on Awards to Inventors, of his excel-

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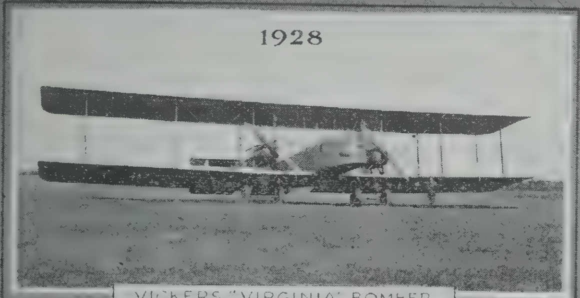
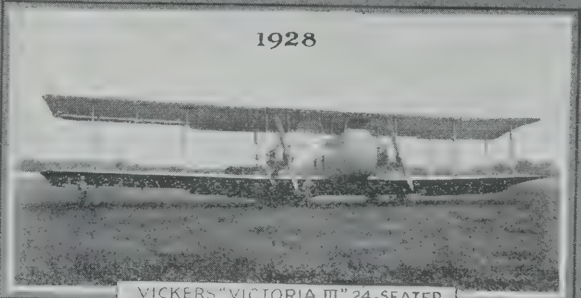

1928

VICKERS "VIRGINIA" BOMBER
METAL SUPERSTRUCTURE.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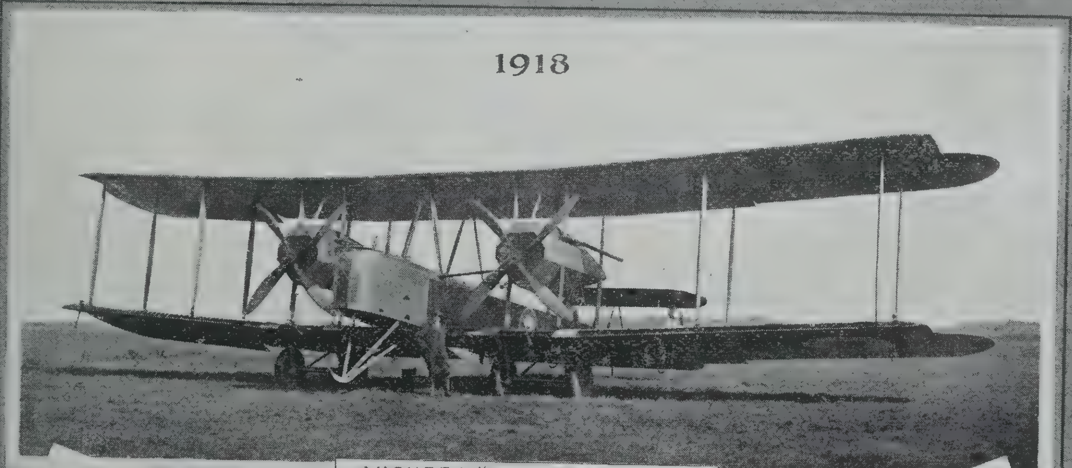
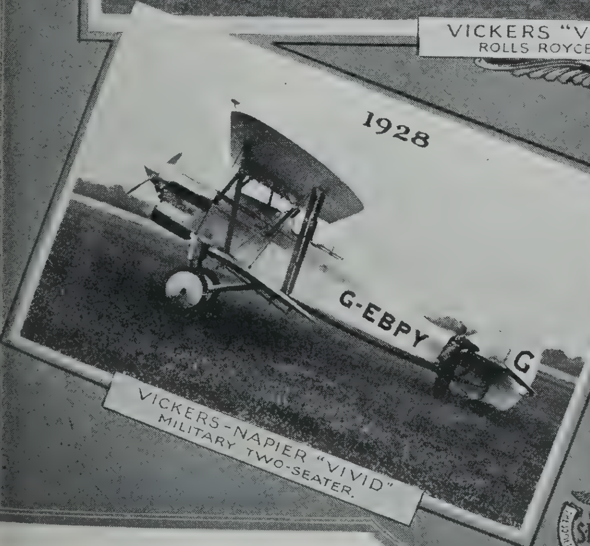
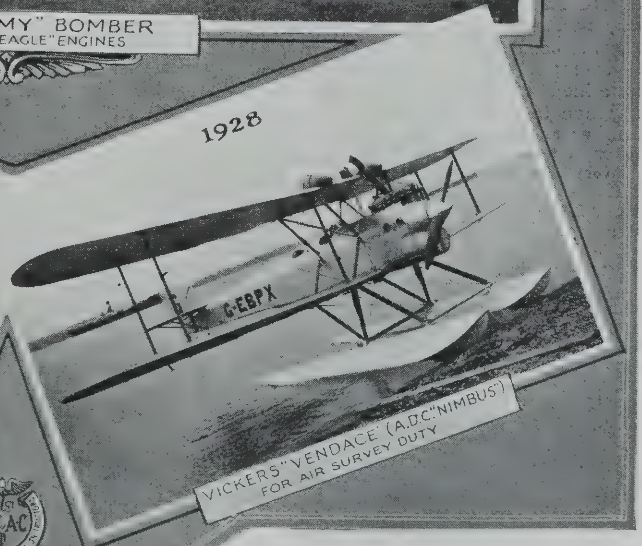
VICKERS "VICTORIA III" 24-SEATER
TROOP CARRIER.


1918

VICKERS "VIMY" BOMBER
ROLLS ROYCE "EAGLE" ENGINES


1928

VICKERS-NAPIER "VIVID"
MILITARY TWO-SEATER.


1928

VICKERS "VENDACE" (A.D.C. "NIMBUS")
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lent services in connection with range finding methods for aircraft.

In July, 1925, he was appointed to the Home Aircraft Depot, Henlow, for engineering duties.

R.A.F. SPORTS AND PASTIMES.

Boxing.

A Boxing Tournament between a team representing the Imperial Services and a team representing the Police Forces of Great Britain and Ireland was held at the Albert Hall on Nov. 1. The Police won by eight contests to four.

The R.A.F. were represented by AC. Buchanan (Light-weight), L-AC. Garratt (Welter-weight), and Flg. Off. G. R. Beamish (Heavy-weight). AC. Buchanan won his match by beating P.C. Ferguson (Metropolitan Police) on points, L-AC. Garratt was beaten by P.C. Page (Doncaster) on points, and Flg. Off. Beamish was knocked out by P.C. Clifton (Port of London Authority Police) in the second round. *The Times* account of these bouts states :—

Aircraftman Buchanan and Police-constable Ferguson, two largish light-weights, opened the boxing and set a pace and vigorous style that mostly continued throughout the evening. Not that Buchanan and Ferguson, however furiously they exchanged punches, ever descended to the crude roughness of some of the intermediate bouts. Buchanan won well on points, but narrowly escaped a knockout punch in the last of the six two-minute rounds.

The Imperial Services were represented by another Air Force man in the next contest, one of two at the liberal welter-weight of 10 st. 10 lb. This weight exactly suited P.C. Page, of Doncaster, who looked well built enough to be a Middle, and was, in fact, nearly half a stone heavier and quite three inches taller than Leading Aircraftman Garratt. Even so, the latter was so much the cleverer boxer, rarely failing to duck or slip his opponent's heaviest swings and countering repeatedly with both hands, that he seemed to have gained an ample lead on points before he began to tire in the last two rounds.

Flying Officer G. R. Beamish, better known as a Rugby Football International forward, very nearly brought off the big thing in his fight with P.C. Clifton, who, in spite of his veterancy, still is as good a heavy-weight as there is in the country. When the gong sounded the kick-off, Beamish charged for Clifton as though the latter were a goal-line, punched him hard into a corner, punched him hard again—and then stood back. Every one, including Clifton, was astounded; then Beamish charged in again, landed hard, and repeated the process of standing back either to admire his handiwork or, quite possibly, to give the other fellow a fair chance. Unhappily for Beamish, Clifton is not the sort of man to treat so lightly, and in the subsequent rushes it was the Services man who received most of the punishment. A stinging straight left, backed up by a right hook, perfectly timed, had Beamish groggy and down twice in the second round, the second occasion being decisive.

Rugby Football.

The R.A.F. Officers' Trial XV versus R.A.F. Cadet College, Cranwell :—The R.A.F. Trial XV beat the Cadets by two goals, four tries and a penalty goal (25 points) to one goal and two tries (11 points).

A strong team was sent down by the R.A.F. to play the Cadets on Nov. 3. Nevertheless the first few minutes of the game gave one the impression that it would be a fairly equal match. The College forwards were playing with considerable dash and on most occasions got the ball inside the scrum. When, however, the R.A.F. outsides obtained the ball they made the best use of their opportunity. By half time the R.A.F. were leading by eight points. In the second half both sides added to the score on the College side. This was chiefly due to the good combination of the halves.

Another account of the game states :—

The ground was in perfect condition the result being that the game was a very fast one. The first half was equally contested, both sides attacking and defending alternatively.

Cranwell drew first blood, the cunning Cadets taking full advantage of a pass forward when the unfortunate Referee was struggling among a loose scrum to pick up his whistle which had been unceremoniously knocked out of his hand by Mr. Beamish of boxing and Irish fame The R.A.F. team equalised shortly afterwards with a penalty goal which was awarded for off-side play. Incidentally the Cadets were prone to be off-side when defending their goal line. A little later the R.A.F. scored under the posts, the try being converted.

The second half showed some very spirited play, the R.A.F. setting the pace. Their forwards improved in the loose and their backs played as backs should play, with the result that they scored five times. Only one of the tries was converted however. The Cadets, although they played with great spirit and determination, could only score once. Cadet Bader, the outside half, was the outstanding player in the field, his breaks-through were magnificent and he was a continual thorn in the R.A.F. side. The Cadet forwards were far superior to the R.A.F. forwards in the tight scrum, getting the ball five times out of every six. The Cadet threequarters were good but lacked thrust in the centre. Had one of these centres only followed through with Bader, at least four tries would have been scored.

The R.A.F. forwards were good in the first half and improved in the second but they were badly in need of a hooker. It appears that C. D. Adams was the best of those tried, although a forward who hooks with his near foot is apt to punish his side with penalty kicks unless he is careful. The brothers Beamish upheld the honour of Ireland as usual. It would be invidious to mention the others as they all played well. McLean at scrum-half was good in spasms but was inclined to be slow in getting the ball away. Odbert played excellently. The threequarter line played better than any R.A.F. threequarter line of the past and if they can improve their speed and determination in going for the line all will be well. The full-back, like all R.A.F. full-backs, tried hard but only kicked well with one foot.—"S. O. S."

The teams were :—

R.A.F. :—Flt. Lt. G. H. Brookman, Flg. Off. C. H. G. Bremridge, Plt. Off. R. D. Cotton, Plt. Off. J. R. H. Pott, Plt. Off. N. E. White, Flt. Lt. R. V. M. Odbert, Plt. Off. D. L. McLean, Plt. Off. R. J. Stevens, Flg. Off. F. V. Beamish, Flt. Lt. B. V. Reyonlds, Flt. Lt. C. D. Adams, Plt. Off. H. A. Constantine, Flt. Lt. J. S. Chick, Flg. Off. G. R. Beamish, Flg. Off. J. Clarke.

Cadets :—Full back : Flt. Cdt. Henzell. Threequarters : Flt. Cdts. Field, Baines, Lascelles and Walker. Halves : Flt. Cdts. Elsmie and Bader. Forwards : Flt. Cdts. Letchworth, Charles, McKechnie, Wallace, Lord Douglas Hamilton, Hood, Keary and Cole.

The R.A.F. Staff College Magazine.

The Hawk, the new magazine of the R.A.F. Staff College, Andover, the first number of which will appear early in December, will be 2s. 6d. a copy.

"The Aeroplane" at R.A.F. Stations.

Complaints have been received from various R.A.F. stations that copies of THE AEROPLANE for the Mess and for individuals do not arrive till Friday mornings. As a matter of fact, copies of THE AEROPLANE, whether sent direct from THE AEROPLANE office or ordered through local news-agents, should arrive at the same time as the daily papers on Thursday.

Subscription copies are sent direct from THE AEROPLANE'S City Office on Wednesdays in good time for the evening trains and should be delivered with the letters next morning.

Officers or men who find any delay in the delivery of THE AEROPLANE are invited to notify this office (175, Piccadilly, W.1) to that effect, and to state whether the copies are delivered by post direct, or are subscription copies ordered through news-agents or whether they are delivered by a news-agent.

THE NEW ZEALAND AIR SERVICE.

Mr. Coates, Premier of New Zealand, in a speech delivered at Dargaville on Oct. 24, announced that the report which the Government had received from Sir John Salmond showed clearly the need for an increased development of the New Zealand Air Service, and stated that to provide money for such development expenditure on the Territorial Defence Force was to be reduced.

THE R.A.F. STAFF COLLEGE

The following books are among those recommended to be studied by candidates for the R.A.F. Staff College.

They may be obtained from THE AEROPLANE BOOK DEPARTMENT.

SCIENCE OF WAR. Henderson. 21/-

A SHORT HISTORY OF THE BRITISH COMMONWEALTH. Ramsay Muir. Vol. I and Vol. II. 30/-

THE DIRECTION OF WAR. Bird. 21/-

IMPERIAL MILITARY GEOGRAPHY. Cole. 10/-

SOME PRINCIPLES OF MARITIME STRATEGY. Corbett. 12/6

THE NATION IN ARMS. Von der Goltz. 10/6

THE INFLUENCE OF SEA POWER UPON HISTORY. Mahan. 30/-

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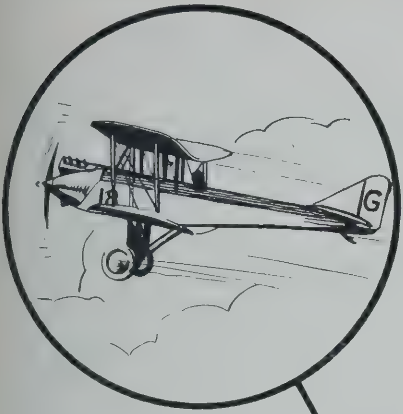

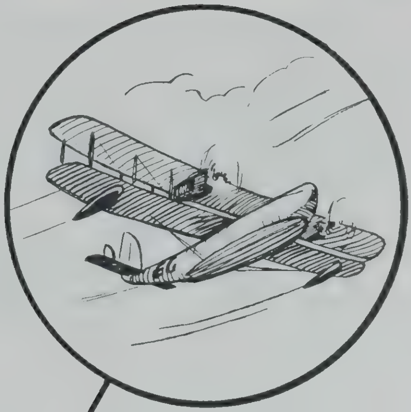

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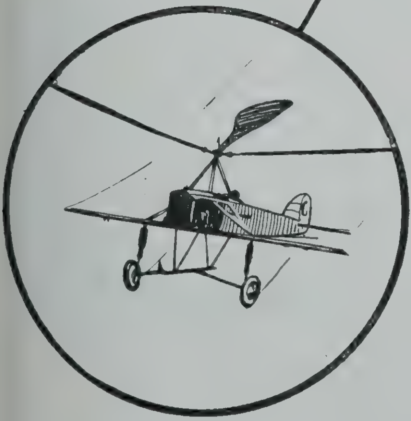
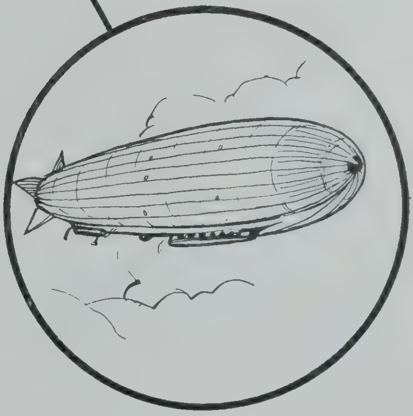




THE ROYAL AERO CLUB.

Associated Clubs General Council.

The General Council of the Associated Clubs met at the Royal Aero Club on Friday, Nov. 2, 1928, at 11 a.m., Lord Thomson (Chairman of the Royal Aero Club) presiding.

The following Clubs were represented :—*Royal Aero Club*—Lieut.-Col. M. O. Darby, F. Handley Page, Lieut.-Col. M. O'Gorman, Maj. H. A. Petre, and Col. The Master of Sempill. *Bristol and Wessex Aeroplane Club*—A. H. Downes-Shaw, Col. D. C. Robinson, and Maj. G. S. Cooper. *Felixstowe Light Aeroplane Club*—Flt. Lt. N. Comper. *Halton Aero Club*—Flg. Off. Cecil H. L. Needham. *Hampshire Aeroplane Club*—O. E. Simmonds, and H. J. Harrington. *Lancashire Aero Club*—A. R. Goodfellow, and J. C. Cantrill. *Liverpool and District Aero Club*—W. Frank Davison. *London Aeroplane Club*—Maj. K. M. Beaumont, D.S.O., Capt. A. G. Lamplugh, and Maj. R. H. Mayo, O.B.E. *Midland Aero Club*—Maj. Gilbert Dennison, and H. A. Pepper. *Newcastle-upon-Tyne Aero Club*—Maj. B. M. Dodds. *Norfolk and Norwich Aero Club*—Capt. R. T. Harmer, G. F. Surtees, and B. L. Young. *Nottingham Aero Club*—C. R. Sands. *R.A.E. Aero Club*—P. N. G. Peters. *Suffolk and Eastern Counties Aeroplane Club*—Dr. James C. Sleigh. *Yorkshire Aeroplane Club*—Fl. Off. F. G. Wayman, and Col. J. Walker.

Official Meetings, 1928.—The account for the four Official Meetings held in 1928 were presented, and it was decided that the amount standing to the credit of the pool should be distributed equally amongst the Associated Light Aeroplane Clubs. A unanimous vote of thanks was passed to the following Clubs, who organised the Official Meetings in 1928 :—The Bristol and Wessex Aeroplane Club. The Hampshire Aeroplane Club. The Lancashire Aero Club. The Midland Aero Club.

Official Meetings, 1929.—The programme for 1929 was considered and it was thought desirable to concentrate on one large Official Meeting in the provinces, at which it was hoped to obtain full support from the R.A.F. It was further decided to hold three smaller meetings at which R.A.F. support would be asked for on a lesser scale. The location for these meetings was left over till the next conference of the General Council.

Insurance.—Mr. E. J. Quarrington, the Honorary Insurance Adviser to the General Council, submitted a report giving statistics of insurances taken out by Light Aeroplane Clubs for the year ended July 31, 1928. It was decided that this report should be issued to all the Associated Clubs.

Establishment of Light Aeroplane Clubs and Aerodromes.—The General Council considered fully the proposal put forward by the promoters of a Company to be formed to establish Light Aeroplane Clubs and Aerodromes in various parts of the country.

[One gathers, quite unofficially, that the Clubs decided, very wisely, to pursue a policy of masterly inactivity, or, in the words of the late Lord Oxford and Asquith, to "wait and see," and, like Mr. Micawber, to "wait for something to turn up." This is in fact a far better policy than either committing themselves to a policy of hostility to Guest and Co., or, on the other hand, throwing themselves into the arms of an organisation which has still to prove its worth.
—C. G. G.]

THE FIRST MONTHLY HOUSE DINNER OF THE R.Ae.C.

The Royal Aero Club will hold its first Monthly House Dinner of the Season on Wednesday, Nov. 14, at 7.30 p.m., when it will welcome home Mr. Bert Hinkler from Australia.

Mr. Hinkler will recount his experiences on his flight from England to Australia and will speak on Aviation in Australia.

Members wishing to attend are requested to notify the Secretary. The number is limited to 60 and early application is requested.

CANADIAN CLUB FLYING HOURS.

The following is the record of the number of flying hours put up by the various Canadian Light Aeroplane Clubs, all of which were formed this year.

Up to Sept. 22 : Toronto, 881 hours; Montreal, 590 hours; Ottawa, 480 hours; Hamilton, 408 hours; Regina, 303 hours; Edmonton, 266 hours; London, 159 hours; Victoria, B.C., 77 hours; Border Cities, 50 hours and Calgary, 37 hours.

Up to Aug. 5, Winnepeg, 375 hours, and up to Aug. 19, Halifax, 90 hours.

AERONAUTICAL AND AUTOMOBILE ENGINEERS.

On Thursday, Nov. 15, The Royal Aeronautical Society will hold the annual joint meeting with the Society of Automobile Engineers. On this occasion Mr. R. J. Penn will lecture on "Aero Engines in Flight with Special Reference to Carburation." The meeting will be held at the rooms of the Royal Society of Arts, John Street, Adelphi, at 7.45 p.m.

Mr. Penn has been Technical Officer in charge of the flying section of the engine research department at the Royal Aircraft Establishment, Farnborough, since 1922.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec. : Harold E. Perrin, 3, Clifford Street, London, W.1.]

Aerodrome : Stag Lane Aerodrome, Edgware, Middlesex.

Report for week ending Nov. 4.

Instructors : V. H. Baker and F. R. Matthews. *Ground Engineers* : C. Humphreys. *Aircraft* : 3 (NY, MP and XS).

Flying Time : 31 hr. 5 min.; *Instruction* : 29 (19 hr. 10 min.); *"A" Pilots* : 18 (9 hr. 50 min.); *Passengers* : 6 (2 hr. 5 min.).

October Flying Time.

Flying Time : 526 flights (213 hr. 15 min.); *Instruction* : 189 flights (76 hr. 20 min.); *"A" Pilots* : 165 flights (88 hr. 30 min.); *Soloists (under instruction)* : 28 flights (13 hr.); *Passengers* : 43 flights (18 hr. 35 min.); *Tests* : 101 flights (16 hr. 50 min.).

Notes.—During the month 165 individual members of the Club flew at Stag Lane, including 51 holders of "A" Licences.

The Newcastle-upon-Tyne Aero Club.

[Sec. : J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending Nov. 4.

Instructor : G. M. S. Kemp. *Ground Engineer* : K. C. Brown. *Aircraft* : 2 (PT and LX).

Flying Time : 25 hr. 20 min.; *Instruction* : 10 (13 hr.); *"A" Pilots* : 12 (11 hr.); *Passengers* : 8 (1 hr. 10 min.); *Tests* : 10 min.

Notes.—New pupils—Messrs. Stainthorpe and Cook.

We were pleased to receive a visit on Saturday last from Sir Alan Cobham. He was staying in Newcastle over the week-end to deliver his lecture on his African trip. A number of Club members attended.

One of our oldest members, Mr. MacMillan, paid us a visit and completed the necessary three hours' solo for the renewal of his "B" Licence. He is at present engaged in the Movie business in California.

The Yorkshire Aeroplane Club.

[Sec. : Lieut.-Col. J. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Nov. 3.

Instructor : G. R. Beck. *Ground Engineer* : R. Morris. *Aircraft* : 2 (SV and RF).

Flying Time : 18 hr. 40 min.; *Instruction* : 7 (3 hr. 55 min.); *Soloists* : 2 (55 min.); *"A" Pilots* : 12 (10 hr. 30 min.); *Passengers* : 7 (3 hr. 15 min.); *Tests* : 1 (5 min.).

Notes.—The Leeds Branch of the Royal Aeronautical Society held their Monthly Meeting at our Club House on Tuesday, Oct. 30, when a very interesting paper was read by Major Scott, C.B.E., A.F.C., who is to be the pilot of R.100, on "The Operation of Large Rigid Airships." The attendance was good and included many members of the Airship Construction Staff at Howden.

As a result of this meeting a number of members of the Yorkshire Aeroplane Club joined the Leeds Branch of the R.Ae.S.

We regret to announce the death of one of our members, Mr. S. W. Evans, as a result of a motor accident last week.

The Midland Aero Club.

[Sec. : Gilbert Dennison, Villa Road, Handsworth.]

Aerodrome : Castle Bromwich, Birmingham.

Report for week ending Nov. 3.

Instructors : Flt. Lt. T. Rose, D.F.C., and W. H. Sutcliffe. *Engineer* : W. J. Halland. *Asst. Engineer* : G. Rees. *Aircraft* : 3 (LT, LW and XT).

Flying Time : 20 hr. 27 min.; *Instruction* : 14 (6 hr. 40 min.); *"A" Pilots and Soloists* : 21 (10 hr. 20 min.); *Passengers* : 6 (2 hr. 35 min.); *Tests* : 52 min.

Notes.—Mr. F. D. Scott successfully made a first solo.

Mr. W. L. Handley passed all flying tests for his "A" Licence.

Very bad weather has again restricted flying.

We were glad to see that the Hampshire Club can remove and replace "heads" before the body has a chance to cool. *We* find that when once *our* engineer has addressed the odd word or so to an engine with a defective cylinder-head it *never* gets cool again.

The Hampshire Aeroplane Club.

[Sec. : H. J. Harrington, Hamble, Hants.]

Aerodrome : Southampton Aerodrome, Hamble.

Report for week ending Nov. 2.

Flying Time : 32 hr. 40 min.; *Instruction* : 20 hr. 40 min.; *"A" Pilots* : 8 hr.; *Soloists* : 2 hr.; *Tests and Passengers* : 2 hr.

Total time for October : 120 hr. 5 min.; *Instruction* : 68 hr. 30 min.; *"A" Pilots* : 23 hr. 10 min.; *Soloists* : 19 hr. 15 min.; *Tests and Passengers* : 9 hr. 10 min.

Instruction with Flt. Lt. F. A. Swoffer and W. H. Dudley, for the month :—Messrs. Buckley, Evans, Reuther, Courtney, Milford, Mattocks, Vernon, Harrison, Tobutt, Miller, Beagley, Crook, Inglis, Brewster, Grahame-Gibbs, Martin, Rice-Hunt, Cater, Castley, Wilson, Neave, Roy, Angus, Storey, Rumble, Fawkes, Cambell, Sturge, Endacott, Major Thorn, Miss Grace, Lt.'s. Roskill, Oswald, Coode, Cdr. Bell, Miss Melvill, Mrs. Gordon Smith, Miss Home, Lt. Schreiber, Major Jenkins, Lt. Litchfield-Speer, Cdr. Hunt, Dr. Bowden, Mrs. Crook, Capt. Tweed, Sir Torquil Munro, Lt. Couchman. *"A" Pilots for the month.*—Messrs. Sanders-Clark, Hall, Rayson, Evershed, Whittle, Baynes, Deane, Michelmore, Parker, Curtis-Nuthall, Wells, Falconer, Fry, Cambell, Sturge, Miss Grace, Lt. DuCane, Lt. Oliver, Cdr. Tower, Plt. Off. Leech, Flg. Off. Southey, Lt. Heath, Don J. de la Cierva, Lt. Kennedy. *Soloists for the month.*—Messrs. Evans, Rumble, Cdr. Bell, Miss Home, Lt. Schreiber, Lt. Coode, Lt. Oswald.

Notes.—Cdr. Bell has passed for his "A" Licence, in the landing test has came to rest exactly on the mark. Lt. Oswald made a successful first solo on Nov. 2.

We congratulate Mr. S. Schofield of the Suffolk Club on obtaining a commercial Licence in America. We hope he will now perform "Side-by-Side" as sung in the States.

The Norfolk and Norwich Aero Club.

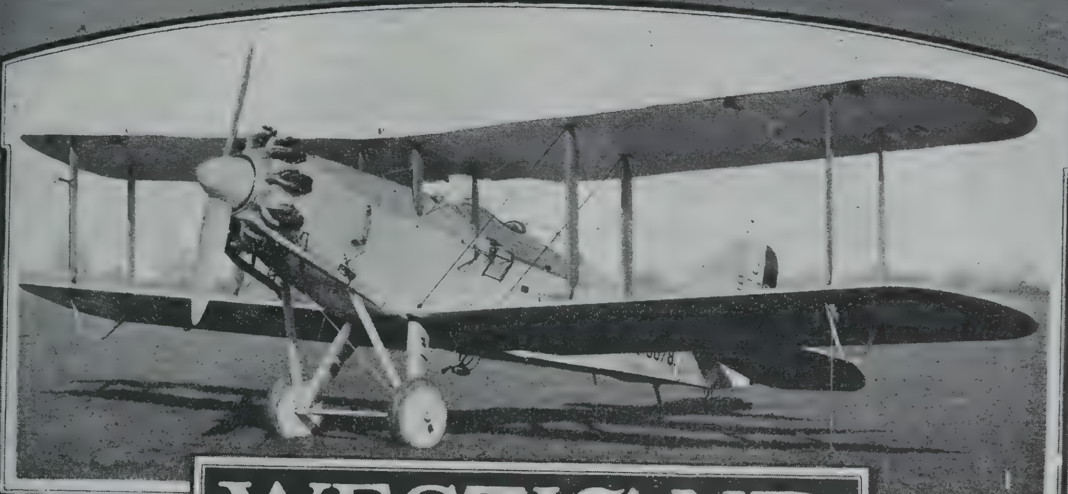
[Sec. : G. McEwen, Mousehold Aerodrome, Sprowston, Norwich.]

Report for week ending Oct. 28.

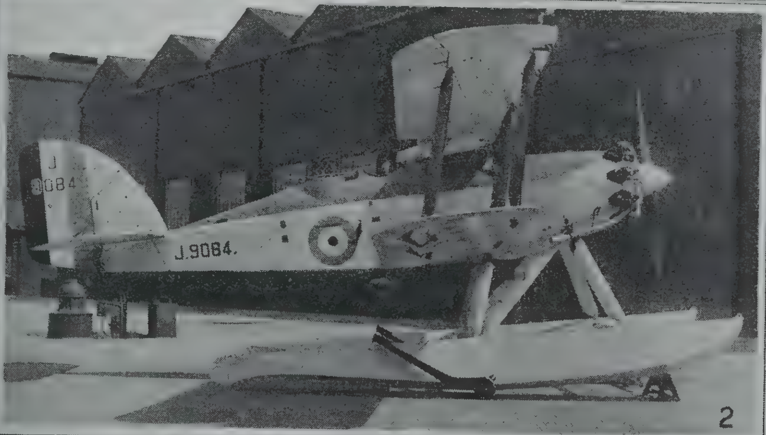
Instructor : B. Young. *Engineer* : A. Kirby *Aircraft* : 1 (ZW).

Flying Time : 8 hr. 55 min.; *"A" Pilots* : 8 (4 hr.); *Instruction* : 3 (50 min.); *Soloists (under instruction)* : 4 (3 hr. 45 min.); *Tests* : 2 (20 min.).

Notes.—New pupil, E. T. Green.



WESTLAND



THE WESTLAND WAPITI

with Jupiter VI Engine (Photos Nos. 1 & 2).

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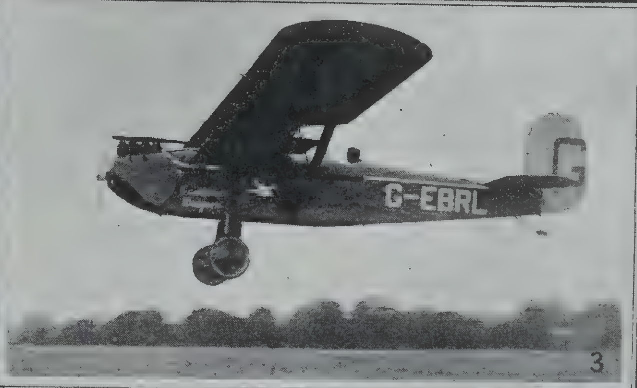

WESTLAND AIRCRAFT WORKS

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Yet another week of fickle weather, during which one machine has been enough for our purposes. QX will soon be functioning again.

We sympathise sincerely with Miss O'Brien in her recent accident and also with the Lancashire Club in their recent sad fatality.

We regret very much being unable to attend the opening of the Berks, Bucks and Oxon Club at Reading. However we take this opportunity of wishing them every success and "Good Hunting."

Report for week ending Nov. 2.

Instructor: B. Young. *Ground Engineer*: A. Kirkby. *Aircraft*: ZW and QX.

Flying Time: 16 hr. 20 min.; *Instruction*: 2 (2 hr.); *Soloists (under instruction)*: 3 (2 hr. 10 min.); *"A" Pilots*: 13 (11 hr. 50 min.); *Tests*: 2 (20 min.).

Notes.—We have only had two flying days this week with the exception of an odd half-hour or so. QX was out of commission for two days while a new centre section front spar main plane fitting was procured to replace one which was cracked.

Congratulations are due to Mr. Rope who climbed to 7,400 feet on his altimeter in his endeavour to do the official height test. When he arrived back to earth the barograph recorded simply nothing. The mystery became apparent however when the small needle was discovered to have come adrift from the arm, and on the following day the height test was made without a hitch. [In such a case who pays for the extra flying?—the Club which supplied the defective barograph, or the makers of the barograph, or the deceived member?]

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadleigh, Suffolk.]

Aerodrome: 2 miles E. from Hadleigh, Suffolk.

Instructor: G. E. Lowdell, A.F.M. *Ground Engineers*: "C," E. Mayhew; "A," G. Keeley. *Aircraft*: 2 RE and UH.

Report for week ending Nov. 3.

Flying Time: 16 hr. 55 min.; *Instruction*: 7 (8 hr. 35 min.); *Soloists (under instruction)*: 2 (15 min.); *"A" Pilots*: 5 (6 hr. 45 min.); *Passengers*: 3 (25 min.); *Tests*: 10 (55 min.).

Notes.—Two new members—Mr. Ripley and Mr. Collingwood—started instruction during the week.

Mr. Welsh, after 7 hr. 25 min., and Mr. Wedd, after 9 hr. 30 min., made their first solo flights during the week. Both put up an excellent performance and made perfect landings, thus justifying our policy of not attempting to rush members through too quickly for purposes of subsidy-snatching.

Mr. S. Schofield made two cross-country flights to Cambridge, and Mr. H. B. Collins, our latest "A" Licence member, went to Colchester.

During a busy period on Sunday an aileron was damaged landing in a very gusty wind. This was replaced by a spare during lunch.

Our flying member is much annoyed with our Hampshire friends. Mr. Ripley having flown with a friend at Hamble was so bitten with the aviation bug that he has joined up at Hadleigh; thus our member has to share the machines with another. The Committee, however, offer their hearty thanks to Hampshire and trust that they will send along more members either to Hadleigh or Cambridge. With regard to Cambridge, flying should start within the next two weeks.

The Bristol and Wessex Aeroplane Club.

[Sec.: Major G. S. Cooper, D.S.O.]

Aerodrome: Filton.

Report for week ending Oct. 27.

Instructor: E. W. B. Bartlett. *Ground Engineer*: A. W. Webb. *Aircraft*: 2 (YH and TV).

Flying Time: 7 hr.; *Instruction*: 5 (2 hr. 55 min.); *Soloists*: 1 (15 min.); *"A" Pilots*: 2 (55 mins.); *Passengers*: 4 (2 hr. 15 min.); *Tests*: 6 (30 min.).

Notes.—Rain, more rain, heavy rain, rain in buckets and otherwise, hail, and gales, have caused disappointment to prospective 'A' pilots.

We congratulate The Hon. B. L. Bathurst on successfully passing his "A" Licence Tests in between the storms in none too good weather.

Mr. Downes-Shaw, with Mr. H. E. Davis as passenger, had an interesting flight on Oct. 21. The object of the flight was to reconnoitre for possible landing grounds at Upton-on-Severn. Soon after starting heavy rain was sighted between them and their objective. A deviation from their course via Cheltenham, Evesham and Worcester enabled them to work round the bad weather and they successfully carried out their reconnaissance of Upton-on-Severn. On the return journey similar trouble was encountered. It was found necessary to return across the Malvern Hills and over the Forest of Dean.

Report for week ending Nov. 3.

Instructor: E. B. W. Bartlett. *Ground Engineer*: A. W. Webb. *Aircraft*: 2 (YH and TV).

Flying Time: 14 hr. 40 min.; *Instruction*: 5 (2 hr. 55 min.); *"A" Pilots*: 7 (10 hr. 15 min.); *Passengers*: 4 (1 hr. 20 min.); *Tests*: 8 (1 hr. 20 min.).

Notes.—Items of interest have been conspicuous by their absence. Attendance has been good in spite of rather depressing meteorology.

The Cinque Ports Flying Club.

[Hon. Sec.: R. Dallas Brett, 114, High Street, Hythe, Kent.]

Aerodrome: Lympne, Kent.

Report for week ending Nov. 3.

Instructor: H. G. Travers, D.S.C. *Ground Engineer*: R. H. Wynne. *Aircraft*: 1 (NN).

Flying Time: 9 hr. 45 min.; *Instruction*: 7 (9 hr. 15 min.); *Tests*: 3 (30 min.).

Notes.—Visiting private-owner members of other flying clubs who hold "A" or "B" Licences, and also serving officers in the R.A.F., who are private owners, may be admitted as flying members of this Club at a subscription of £2 2s. per annum without an entrance fee. This should be a help to private owners travelling to and from the Continent and passing through Lympne.

Messrs. Law, Sargent, Clemetson and Worsell are nearly ready to be launched solo, and we hope to obtain quite a batch of "A" Licences shortly.

Liverpool and District Aero Club.

[Sec.: J. Ellis, Hooton Park Aerodrome, Wirral.]

Report for week ending Oct. 27.

Instructor: Flt. Lt. J. B. Allen. *Ground Engineer*: Howard Pixton *Aircraft*: 2 (WK and XX).

Flying Time: 11 hr. 50 min.; *Instruction*: 16 (8 hr. 10 min.) *Soloists (under instruction)*: 3 (1 hr. 45 min.); *"A" Pilots*: 5 (55 min.) *Passengers*: 2 (40 min.); *Tests*: 20 min.

Notes.—Owing to unfavourable weather flying was impossible o Wednesday and Saturday.

Repairs are not yet completed to XY owing to spare parts being los in transit, and we were therefore unable to support the Berks, Bucks and Oxon Display.

We are buying a spare engine, which will enable us to keep ou three machines always available so far as the motors are concerned

Mrs. Naylor did her "A" licence tests on Thursday very satisfactorily. Mrs. Naylor's flight was remarkable in that (a) she is the first woman member to pass her tests; (b) she was not photographed before or after the flight and (c) did not carry lipstick, powder or other aids to an impromptu toilet at 7,000 feet. Mrs. Naylor has taken her ticket before her husband, who is also a flying member

The Club has just issued a Bulletin on its progress. The secretarial work is now in the hands of Mr. J. Ellis, late Quartermaster of the 4th Batt. Cheshire Regiment. He will be in his office, which is in the hangar, or on the aerodrome, daily during normal hours Members are asked to book flights between 10.00 hours and noon.

Club Flying.—When the Club started flying on July 3 only the instructor and four members were capable of flying solo. By Oct. 14 23 members had flown solo, and a further 24 are in the earlier stages of instruction. Three of the 23 have taken their "A" Licence The rest are mostly waiting for weather conditions suitable for climbing to the stipulated 6,500 feet.

Demonstration Flying.—At the special request of Lever Brothers, on the occasion of their Annual Fete two Club machines performed, without landing, over Port Sunlight Recreation Ground. The pilots were Flt. Lt. Allen and Mr. H. L. Christie.

The Club has contracted with Aerofilms Ltd. in connection with the photographing of industrial sites, factories, parks and private estates. Club machine and pilot are employed by the hour, and a representative of Aerofilms is responsible for the camera work.

Report for week ending Nov. 3.

Instructor: Flt. Lt. B. Allen. *Ground Engineer*: H. Pixton.

Flying Time: 27 hr. 35 min.; *Instruction*: 22 (17 hr. 20 min.) *Soloists*: 12 (9 hr.); *Test and Passenger Flights*: 1 hr. 15 min.

Notes.—Flying times for this week show a marked improvement owing to a decided change in the weather towards the end of the week. Soloists of one or two hours' experience have been able to put in showers of landings and generally to increase their individual airworthiness.

Thanks to the energy of the House Committee (especially Messrs Dawson and Mousdale) our striking (very) new Club House was in full swing on Saturday.

The Nottingham Aero Club.

[Sec.: Cecil R. Sands, A.C.A., Imperial Buildings, Victoria Street Nottingham.]

Report for week ending Oct. 26.

Instructor: Bernard Martin. *Ground Engineer*: A. J. Harris.

Flying Time: 19 hr. 25 min.; *Instruction*: 5 (1 hr. 45 min.); *Soloists*: 9 (3 hr. 50 min.); *"A" Pilots*: 7 (10 hr. 30 min.); *Passengers*: 8 (2 hr 20 min.); *Tests*: 1 hr.

Notes.—Bad weather has again seriously curtailed our flying time this week. On Sunday morning Mr. Cyril Ball arrived back from Bristol with QW and later in the morning Sir Sefton Brancker arrived in the A.A. Moth piloted by Mr. Ramsden, who almost immediately returned to Bristol. Sir Sefton, who was the guest of Sir Albert Ball our Vice-President, visited the site of our new aerodrome at Tollerton and said it was the best site he had inspected for a Municipal aerodrome.

On arriving back at Hucknall, Sir Sefton was conveyed by Mr Martin to Sherburn aerodrome in QW. On the return journey, about 6 miles N. of Hucknall, a rocker-arm broke and he was forced to land The machine had to be left overnight and after repairs duly arrived at the stable.

On Wednesday Mr. (Texas) Austin, whilst doing his height test, lost the aerodrome and made a good landing at Flintham, near Newark, to inquire where Hucknall had gone to. However, Mr. Martin and Mr J. Taylor flew over in QW, the latter flying BA back.

There seems to be an epidemic, among new pilots doing their height tests, of losing their way. This must cease or else Mr. Cyril Sands will lose his business and the staff will be getting prematurely old.

FLYING SCHOOLS.

The De Havilland Flying School.

Report for week ending Oct. 28.

Flying Time: 69 hr.; *Instruction*: *Dual* 11 hr., *Solo* 38 hr. 25 min. *Other Flying*: 19 hr. 35 min.

Notes.—One of our Indian pupils successfully passed his tests for "A" Certificate, and our Egyptian pupil passed his height test for "B" Certificate.

Eleven new Gipsy-Moths were tested.

Mr. J. V. Hilman, one of our instructors, is to be congratulated on his marriage to Miss L. Ludlow at Hanwell on Saturday afternoon.

Report for week ending Nov. 4.

Flying Time: 132 hr. 15 min.; *Instruction*: *Dual* 56 hr. 10 min. *Solo* 32 hr. 20 min.; *Other Flying*: 43 hr. 45 min.

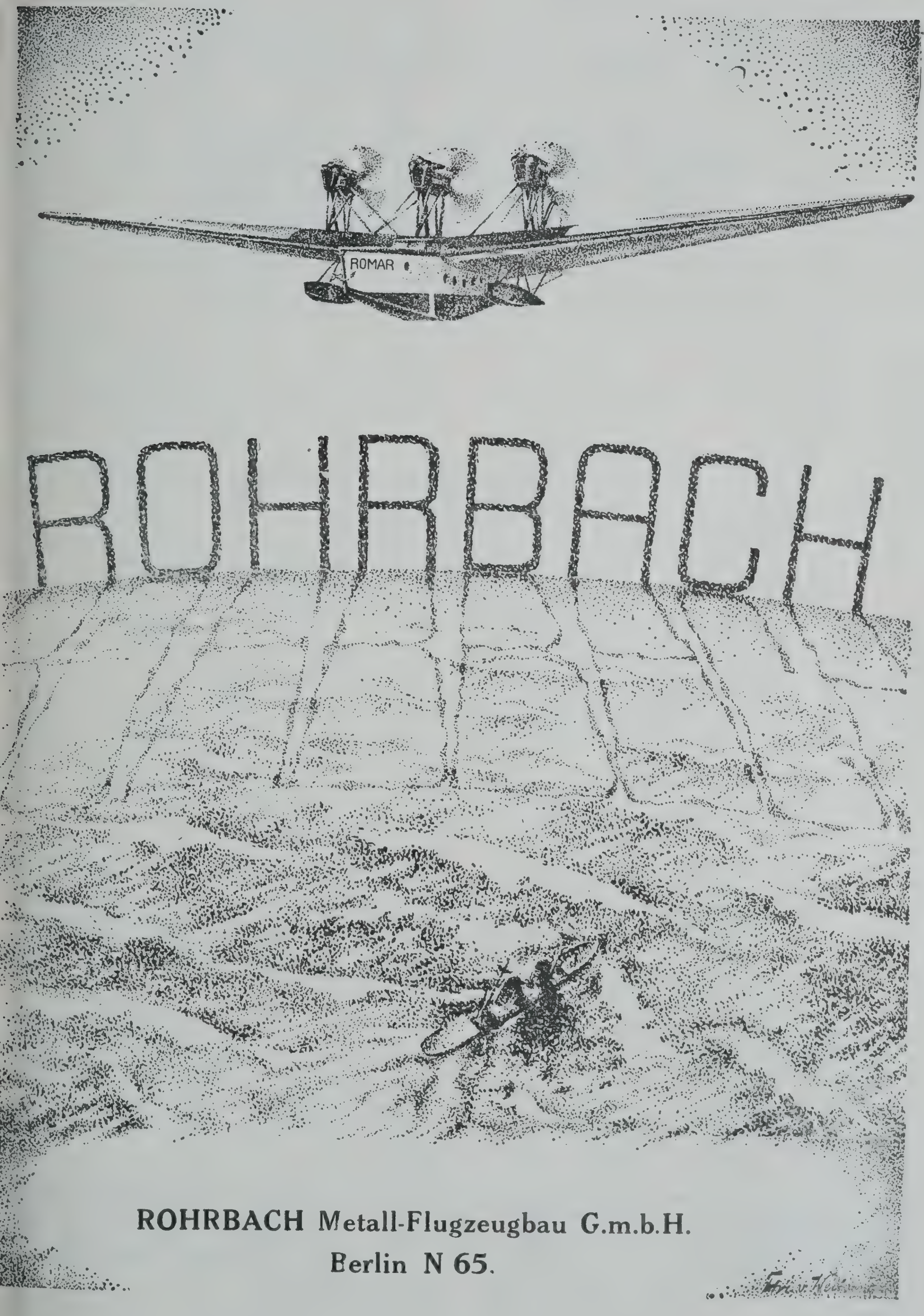
Notes.—Despite the unfavourable weather a considerable amount of flying has taken place and eleven new Gipsy-Moths were duly tested and handed over.

Amongst the new owners taking delivery was Señor Ansaldo, who has evidently great faith in British products, for on his first flight he gave a daring exhibition of aerobatics.

On Tuesday we were honoured by a further visit from Sir Samuel and Lady Maud Hoare, who were accompanied by Señorita De Alvarez, the well-known tennis player. Both the ladies thoroughly enjoyed flights in Moths—Lady Maud being piloted by Capt. de Havilland in the new Gipsy-Moth Coupé, the latest "enclosed" light aeroplane.

On Friday, Mr. Chamberlin, the Atlantic airman, was transported to Southampton by Moth aeroplane just in time to catch his boat—despite a much delayed start from Stag Lane.

Altogether a busy and interesting week.



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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 4; Monday, 21; Tuesday, 16; Wednesday, 16; Thursday, 13; Friday, 14; Saturday, 18.

Imperial Airways Ltd.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 43, passengers 330, freight 17 tons.

Air Union:
Paris—London and return: Machines 25, passengers 97, freight 12 tons

K.L.M.:
Amsterdam—Rotterdam—London and return: Machines 12, passengers 49, freight 4½ tons.

Sabena:
Brussels—London and return: Machines 10, passengers 17, freight 1½ tons.

Deutsche Lufthansa A.G.:
Amsterdam—London and return: Machines 9, passengers 28, freight 2 tons.

Miscellaneous:
British machines 3, passengers 5.
Foreign machines 0, passengers 0.

Total number of trips by British Machines, 46, carrying 335 passengers. Foreign Machines, 56, carrying 191 passengers.

COMPARATIVE FIGURES.

Week ending Nov. 3:
Machines, 102; Passengers, 526; Crews, 101; Total personnel, 627.
Corresponding week, 1927:
Machines, 88; Passengers, 352; Crews, 159; Total personel, 511.
Corresponding week, 1926:
Machines, 69; Passengers, 208; Crews, 81; Total personnel, 289.
Corresponding week, 1925:
Machines, 67; Passengers 183; Crews, 80; Total personnel, 263.
Corresponding week, 1924:
Machines, 85; Passengers, 285; Crews, 106; Total personnel, 391.
Corresponding week, 1923:
Machines, 71; Passengers, 167; Crews, 107; Total personnel, 274.
Corresponding week, 1922:
Machines, 45; Passengers, 160; Crews, 73; Total personnel, 233.
Corresponding week, 1921:
Machines, 67; Passengers, 96; Crews, 99; Total personnel, 195.
Corresponding week, 1920:
Machines, 52; Passengers, 79; Crews, 63; Total personnel, 142.

Croydon Notes.

Diligent inquiry at Croydon reveals that Lt.-Commander Glen Kidston's Fokker was fitted out with machine guns, bomb-racks, or the like lethal equipment, and the rumour—which seems to have aroused great indignation in the minds of certain big-game hunters—that the methods of aerial war are to be applied to the big game of Central Africa by this expedition is not to be taken too seriously. The aeroplane is to be used for locating and possibly photographing big-game and as a means of rapid transport but not as a gun platform.

On one recent morning Mr. Neville Stack of A.D.C. Aircraft Ltd. was seen making such spectacular zooms and the like on the Cirrus Service Moth that it was generally assumed that he was trying to live up to his Berlin reputation as a *Künstflieger.* Actually he was testing a modified Cirrus engine which is being used to try out a new type of cylinder and valve gear, evidently giving a good deal more power than the normal Cirrus, and endowing the Moth with a really spectacular climbing capacity.

The private pilot who will not take the trouble to comply with air route regulations is still causing trouble.

Recently two privately-owned British machines left Berlin for England without notifying their destination. At about dusk they were seen by Ostende which notified Croydon that they were apparently making for England. They crossed the Channel in the dark, and landed at an R.A.F. aerodrome in Kent where they stopped for the night without informing anyone. Croydon, knowing only that they might be arriving there—had all its lights on for their reception—but had no certain news of their proceedings till one of them drifted in next morning.

Mr. Clarence Chamberlin on his occasional visits to this side of the water seems to make a habit of disregarding all air navigation regulations. On his last visit, when he brought a Loening amphibian on the *S.S. Leviathan,* he cleared from Paris for Croydon at 12.55 hours. At 15.45 hours he passed Berck and then was heard of no more till at 18.00 hours Croydon learnt that he had landed at Southampton. An Mr. Chamberlin is Aeronautical Adviser to the State of New York.

In the mention made in these notes last week of the little Koolhoven three-seater monoplane it was said that the engine fitted was the Siemens Halske seven-cylinder radia of 100 h.p. This was an error—the engine is the five cylindered type of only 70 h.p. This fact makes the performance of this machine the more remarkable.

AIR TRANSPORT AND BRITISH RAILWAYS.

On Oct. 31 *The Times* announced that Imperial Airways having failed in its endeavours to secure the co-operation o the British railway companies in a system of combined ai and rail transport for goods, had now entered into negotiations with certain road transport firms with a view to arranging for rapid distribution to any part of this country of goods sent by air to Croydon aerodrome.

Almost immediately after this announcement was made an authoritative statement appeared in several London papers that the railway companies as a whole were meditating making application to Parliament for powers to operate their own air services.

The scheme proposed by Imperial Airways, and apparently rejected by the railways, was of a nature somewhat simila to that in force in Germany, whereby express goods can be handed over to any railway depot, taken thence to the nearest aerodrome, then flown to the aerodrome most convenient for their destination, and then complete their journey by train. For this purpose one inclusive charge is made and one consignment note only is necessary.

In this country the scheme would mean that outwar goods would be accepted by the railways for transmission t Croydon, and incoming goods would be handed over at Croydon for distribution by rail, without re-consignment or othe troublesome formalities.

So far as can be discovered the railway companies object in seeking powers to operate air services is to cater fo inland express passenger services, mainly in connection with the existing local services to the Continent, and by this means to speed up communications between Northern and Midland centres and the Southern ports.

SMOKING IN AIRCRAFT.

Up to the present the Air Navigation Regulations have definitely prohibited smoking in any British aircraft, or i foreign aircraft flying over Britain.

An amendment to the regulations made by Order i Council, just published in the *London Gazette,* reads as follows:—

> A person shall not smoke in any aircraft registered in Great Britai and Northern Ireland, unless and except in so far as smoking in that aircraft is permitted by a notice exhibited by the owner of the aircraf in a prominent place therein.
>
> A notice permitting smoking in any such aircraft may only be exhibited therein if and in so far as smoking in the aircraft is permitted by the certificate of airworthiness of the aircraft or by the direction of the Secretary of State.
>
> The owner of every aircraft registered in Great Britain and Norther Ireland shall exhibit in a prominent place in the aircraft a notice stating whether and to what extent smoking is prohibited or permitted therein.

The story behind this amendment is—it is alleged—that Imperial Airways felt that on long journeys the prohibition of smoking was a definite annoyance to many passengers and accordingly decided that in the all-metal Short Calcutta flying-boats, whose fuel tanks are far removed from the hull, smoking should be permissible. The Department o Civil Aviation concurred, and it was publicly announced that on these machines smoking would be permitted.

The discovery was then made that the regulations in force contained a definite and absolute prohibition of smoking under any circumstances.

THE MANCHESTER MUNICIPAL AERODROME.

On Oct. 31 the General Purposes Committee of the Manchester City Council unanimously decided to set aside the area of 150 acres at Chat Moss which has been provisionally approved by the Department of Civil Aviation as a suitable site for an aerodrome. Later on the same day this decision

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was submitted to the City Council as a whole and was unanimously confirmed.

An immediate application is to be made to the Air Ministry for a licence for this ground as an aerodrome. Very little expenditure is necessary on the ground itself, and although the erection of the necessary buildings will take time, it is hoped that the aerodrome will be usable before the end of the present year.

A MUNICIPAL AERODROME FOR NOTTINGHAM.

The Corporation of Nottingham is to apply to Parliament for powers to establish a municipal aerodrome. The site to be used is not definitely decided, but it will probably be near Tollerton, about four miles from the city.

THE DUTCH EAST INDIES AIR SERVICE.

The new air service in the Dutch East Indies which connects Batavia with Sourabaya and Bandoeng was formally opened on Nov. 1 in the presence of the Governor-General of the Colony. The journey from Batavia to Sourabaya by rail or steamship takes about forty hours, but will be reduced to four and a-half hours by air.

The operating company, the Nederlandsch-Indische Luchtvaart Maatschaapy (N.I.L.M.), is closely allied to the famous K.L.M. and has a capital of 5,000,000 guilders (£415,000) mainly subscribed by the Dutch shipping, banking, agricultural and oil companies interested in the East Indies, and receives from the Netherlands Indian Government an annual subsidy of 1,000,000 guilders (£83,000).

The service is to be operated by the four Fokker F.VII-3m. monoplanes (Armstrong Siddeley Lynx engines). Three of these have already flown from Amsterdam to Batavia. The fourth of them should by now have arrived after a delay at Rangoon.

The fifth of the machines to fly to Batavia—which is understood to have three Bristol Titan engines—left Batavia on its return journey to Amsterdam on Nov. 2.

A PROPOSED BRAZILIAN AIR SERVICE.

A company known as *Empresa de Transportes Aeros* has just been formed in Rio de Janeiro for the operation of commercial air services in Brazil.

This company, which is to be exclusively Brazilian both as to capital and personnel, hopes to start operations between Rio and San Paulo during October of this year, carrying at first mails and small parcels. Eventually it intends to extend its operations to all the principal cities of Brazil and to include passenger-carrying therein.

The trip from Rio to San Paulo by air is expected t take three hours. By existing methods of transport it take two or three days to send a letter from one to the other an receive a reply, so that it is felt that the new service wil command a heavy mail traffic.

Machines for use on this service have it is said alread been shipped from Germany.

AVIATION AND THE CINEMA.

The majority of people who visit the cinemas put up wit what is bad in order to see what is good. The film pro ducer and the film renter are so hide-bound by the ignoranc and prejudice of the early days of the art that they hav not realised that most of those who see the films hav minds in advance of those of the readers of the penny dreadful. If there were nothing but penny-dreadfuls t read no doubt we should read them and in just the sam way we go to see penny-dreadfuls on the screen because ther is little else to see. Only the stunted mind of a film pro ducer would have spoilt a fine flying film like " Wings by introducing the stupid antics of an impossible girl.

In just the same way the latest flying film, *The Air Circus* a private presentation of which was given on Oct. 24, ha been spoilt by the introduction of a " heart interest " s vulgar and futile as to be nauseating. The story of th film concerns two youths who learn to fly at a bi American civil school of aviation. Both these youths loo about 16 years old, and slightly mentally deficient at that particularly the one who becomes a successful pilot. Wh it is necessary for them both to fall in love with the mincing giggling sister of the chief instructor only the mind of film producer can conceive.

Some of the flying scenes, taken in the air and on th ground, are excellent, particularly the scene in which on of the idiot boys tries to make his first solo landing. It i as hair-raising and as funny as seeing crazy-flying for th first time. Also the scene in which the other youth and th girl, having wiped off the undercarriage of their machine o a tree stump, discover what has happened and get ou in parachutes. But the whole film does not contain mor good flying than can be seen in one of the weekly film new Gazettes.

These film people will not realise that a public exist which would enjoy a solid hour of pictures of the R.A.F Display for instance and would not expect it to be padde with heart interest and sob-stuff.—C. M. MCA.

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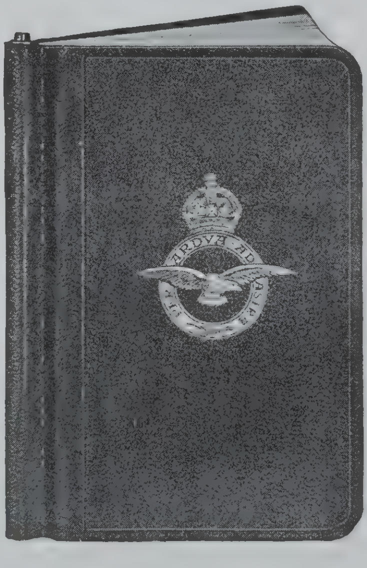

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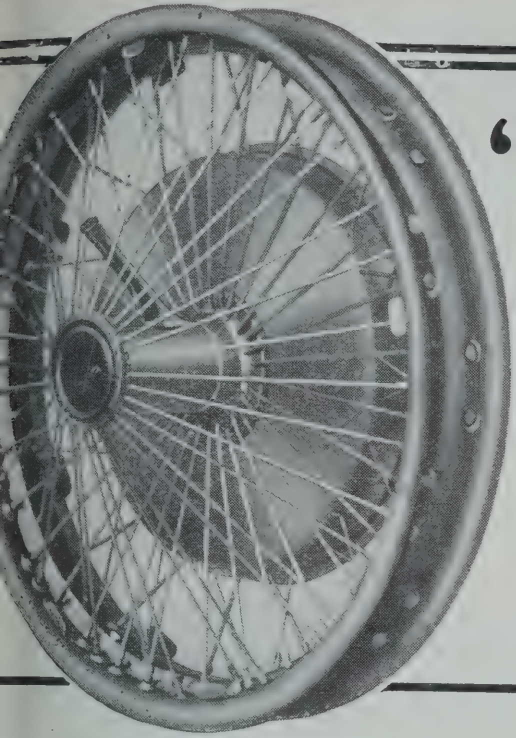

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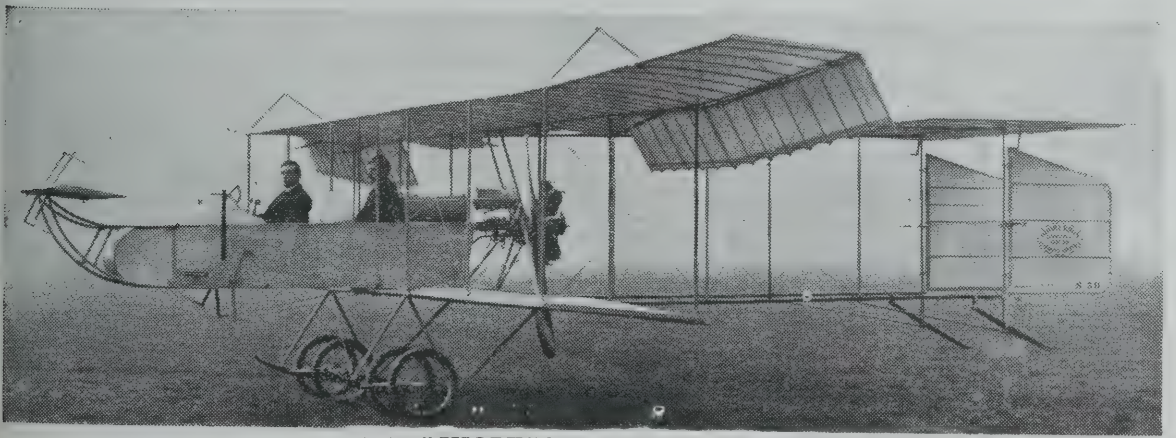

1912 "SHORT" No. 38 TYPE BI-PLANE
figured in Army manoeuvres 1913 and saw Active Service during early part of the war. A machine of this type was one of the first aeroplanes to be fitted with a gun and another with wireless.

16 YEARS AGO. Messrs Short Bros. have always been famous for the design and efficiency of their Aircraft, and in 1912 the above machine was the latest product of the Eastchurch Factory. For the machines they constructed in those days they used as they still do

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READY FOR CHRISTMAS.

Among the best things in the way of Christmas gifts of the inexpensive kind that one has come across are the packs of playing cards just produced by the Aircraft and General Fine Art Co., of Constitutional Buildings, East Grinstead. The faces of the cards are of a conventional kind, but the backs represent aircraft scenes in Mr. Johns' best manner.

So far one has seen two specimen packs. One has a very pretty picture of a silver-and-red Moth over a good bright landscape, the other has a picture of a night-flying Virginia against a bright starry sky. The cards are packed in gilt cardboard boxes which themselves give an air to the proceedings.

One gathers that packs with pictures of other well-known aircraft on the back will be ready very soon. The price of the packs is 3s. each, or, presumably, 3s. 3d. including postage. Consequently anybody who happens to be interested in any particular type of machine will probably be able to get cards with that type on them.

The interest works either way.—A pilot of a machine of a certain type can present pictures thereof to his girl-friends, or the girl-friend can give the pilot a pack with his own particular type of machine on them.

SATISFACTION.

Blackburn Aeroplane and Motor Company Ltd.—Satisfaction in f on Oct. 10, 1928, of mortgage dated April 6, 1924, securing £8,000.

PERSONAL NOTICES.

Marriage.

BLOOM—OWEN.—At St. Martin-in-the-Fields, on Nov. 3, G. Harrison Bloom, son of Major R. J. W. Bloom, of Haughton-le-Skern Darlington, and Miss Barbara Owen, daughter of Mr. Herbert Ow and niece of Miss Louise Owen, of 36, Buckingham Gate, S.W.

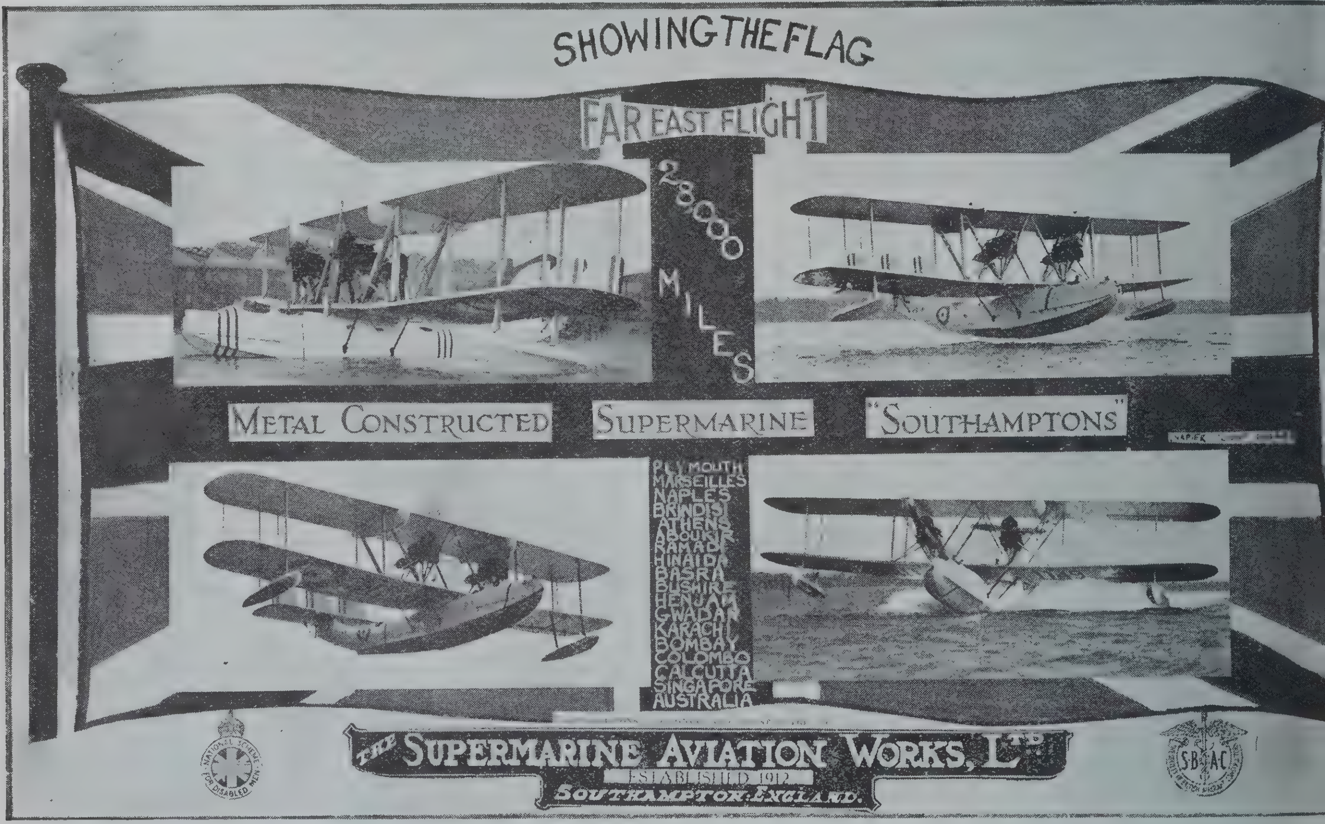
Forthcoming Marriage.

MARTIN—WALKER.—A marriage has been arranged and wi shortly take place between Mr. A. W. Graham Martin, R.A. Andover, only son of Brigadier-General H. Martin, C.B., and th late Mrs. Martin, and Mrs. Walker, of the Lake Vyrnwy Hote Oswestry, widow of Commander B. C. Walker, R.N., and daughter Mr. and Mrs. F. P. Barnett.

Births.

COX.—On Oct. 31, at 16, Bushmead Avenue, Bedford, to Marjori wife of H. Roxbe Cox (Royal Airship Works)—a son.

CRITCHLEY.—On Oct. 30, at 18, Upper Grosvenor Street, to Joa wife of Brig.-General A. C. Critchley, C.M.G., D.S.O.—a daughter.



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THE BRITISH AIR LINE TO THE CONTINENT.

THE AEROPLANE—NOV. 14, 1928.

THIS SLOT BUSINESS.

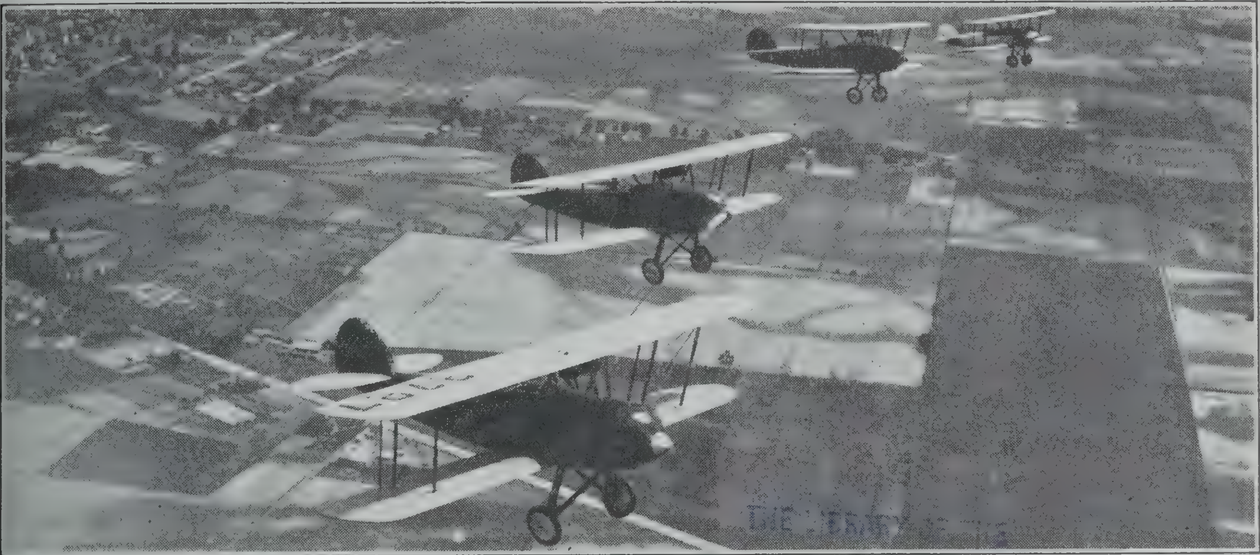
THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXXV. No. 20. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"THY SPIRIT, INDEPENDENCE, LET ME SHARE."
(Tobias Smollett.)



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NOV. 14, 1928.

THE AEROPLANE

Incorporating Aeronautical Engineering

VOL. XXXV No. 20.

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ON THIS SLOT BUSINESS.

n the year 1920, to be precise on October 27 in that year,
article was published in THE AEROPLANE setting forth in
nple and practical language and illustrations, the theory of
Handley Page slot. Since then, at frequent intervals,
icles have appeared in this paper pleading for quicker
periment and more extensive use of the slot device, in the
st interests of the progress of aviation.

n all these articles the fact has been clearly demon-
ated that by the proper development and use of the slot,
t only can flying be made safe, which is fairly important,
t, what is very much more important, flying can be made
paying commercial proposition. Human nature is a queer
ng at all times, and never more so than when the relative
ims of life and money have to be compared and valued.
Big Money interests never hesitate to sacrifice life when
ere is money to be made by doing so. And yet the biggest
nmercial concerns spend quite a lot of money on what is
led welfare work, that is saving the lives and improving
health of their employees, because for a given wage more
rk can be got out of a healthy employee than out of a
k one. Evidently when a Big Business has to decide
ether it will spend lives or money, the decision depends
which is going to pay best in the long run.

n much the same way, both in peace and war, Governments
l at one time spend life recklessly to save money, and
another time they will spend money equally recklessly to
e lives. Far more money has been spent by Governments
d shipping companies in searching for comparatively use-
s people who have lost their lives in foolhardy trans-
eanic flights than would have paid for the experiments
ich would have produced a proper Ocean-worthy flying-
t.

he slowness of the development of the Handley Page
t is rather a curious example of the unwillingness of
her business people or Governments to spend money in
ing lives, and of the unwillingness of business people to
nd money to make more money. If more money had been
nt under truly energetic direction we should have arrived
g before this date at a stage when the slot device would
e saved quite a number of lives and, moreover, would
e made possible the design and production of aeroplanes
ich would be far better commercial propositions, as either
passenger-carriers or freight-carriers, than any which exist at present.

WHERE WE ARE AT.

To-day, after eight years, we have just reached the stage where people are beginning to believe in slots as a possible way to a happy issue out of all our afflictions, because, the cost of flying in lives and money being the one thing which prevents aviation from being a success, people are beginning to see that the slot is a method of saving both lives and money.

The unfortunate thing about the development of the slot up to the present day is that so far nobody has even begun to use it as it ought to be used, let alone using it as it could be used if fully developed. And, a fact which would be funny if it were not so tragic is that the very people who ought to understand best the true usefulness of slots, and ought to do most to advocate the use of them, are the very people who seem to understand them least, and regard them with the most suspicion.

For example, on September 24, the Air Ministry in "Notice to Airmen No. 70," solemnly warned the World that slots should never be used except in emergency. And, in the Club Notes of the week ending October 13, the Lancashire Aero Club equally solemnly stated that one of the Club machines which has been fitted with slots is to have those slots removed as it is deemed undesirable to have one machine slotted and the rest unslotted.

One would have imagined that if the Air Ministry had anything at all to say to pilots on the subject of slots it would be that, if a machine be fitted with slots, the slots should be used on every possible occasion so that the pilot might accustom himself to judging the speed and distance of the machine in landing with the slots open.

A pilot of a slotted machine ought, in fact, always to land with his slots open. Then, when forced to land by circumstances over which he has no control in country which he does not know, he will at least know precisely how his machine will behave with the slots open. To ask a pilot to fly onto the ground on his own aerodrome, or to ask him to land so much above stalling speed that the slots remain closed, is simply asking him to avoid learning how to land in a small space in case of emergency.

A SPORTSMAN'S COUPE.—Mr. M. L. Bramson demonstrating the Koolhoven, F.K.41 (Siemens engine) at Croydon.—(*" Aeroplane " photograph.*)

Similarly, one would have imagined that as the job of the Lancashire Aero Club is primarily to teach people to fly properly, the Club instructors would have insisted on all Club machines being fitted with slots. And if that could not be done, for financial reasons, they should, at any rate, make the best use possible of their one slotted machine by using it to teach advanced pupils how to fly and how to land with slots.

A COMPARISON.

On various occasions in writing about slots one has compared them to four-wheel brakes on a car. This is about the nearest analogy one can imagine to the precise kind of safety which is given by slots on an aeroplane. To put it bluntly, four-wheel brakes, so long as they work, will save a fool driver from a collision which would be bound to happen if he had back-wheel brakes only. And slotted wings, so long as they work, will save a fool pilot from spinning into the ground and killing himself (and his passengers if any) as he would do without slots.

With four-wheel brakes a good driver can put up a performance on the road which he could not possibly do with back-wheel brakes only, because he can check his car and get out of tight corners while maintaining a high average speed, thanks to quick acceleration and deceleration. A good pilot on a slotted machine can make slow landings in a limited space which even he could never make without slots. And, given practice enough with slots, he will make those landings equally well whether they be forced landings or on an aerodrome.

A thoroughly bad driver not knowing his car and presuming entirely on the reliability and strength of his four-wheel brakes, will sooner or later have a bad crash. And with luck he may kill himself and so remove a nuisance from the road. With slots a certifiable lunatic of a pilot can equally well remove himself from troubling the sky.

A good driver with four-wheel brakes will always so handle his car that if his brakes fail he will still escape an accident. A good pilot on a slotted machine will always fly so that if his slots fail he will still save himself and his passengers, though perhaps at the expense of damaging the machine.

In teaching a novice to drive a car there are good arguments in favour of making him, or her, learn on a car with back-wheel brakes only. And, likewise, there are good arguments in teaching a would-be pilot to fly on a machine without slots.

But a good car instructor would prefer to teach a novice on a car with four-wheel brakes, and would take care to make the novice learn to use the hand-brake without using the foot-brake. And, similarly, a good flying instructor would prefer to teach a novice on a machine with slots, but would make him learn to fly the machine and land it as if there were no slots. After that he would teach the novice how to use the slots to the best advantage.

AN ODD DEVELOPMENT.

Perhaps the most odd thing about this slot business is that, with the exception of a few experimental machin built for the Royal Air Force, there are no aeroplanes y in use which are fitted with slots to be used as they shou be used,—namely to improve the get-off of the machine low speeds, and to give a slow landing-speed so as to g the machine down in a limited area.

The one thing which has brought slots into common u at all is the discovery that if slots are fitted opposite to th ailerons they give full lateral control to the machine whe it is sinking below its stalling speed, and so prevent it fro falling over sideways and going into a spin. This di covery has made the slot popular as a life-saving device, b it has done nothing to develop it as a speed-reducing devi either for getting-off or landing. And a slowed-up landi speed, or a reduced run in getting off is very nearly as val able an aid to life-saving as is control below stalling speed,— which many people seem to forget.

Slots were first adopted by the Royal Air Force, who ha them fitted to Bristol Fighters, as a means of reducing th number of fatal accidents which were caused by careless clumsy pilots stalling their machines near the ground. Bri tol. Fighters have ailerons on the upper and lower plane and so the slots, fitted to the outer ends of both plane gave the needed lateral control and were very effective.

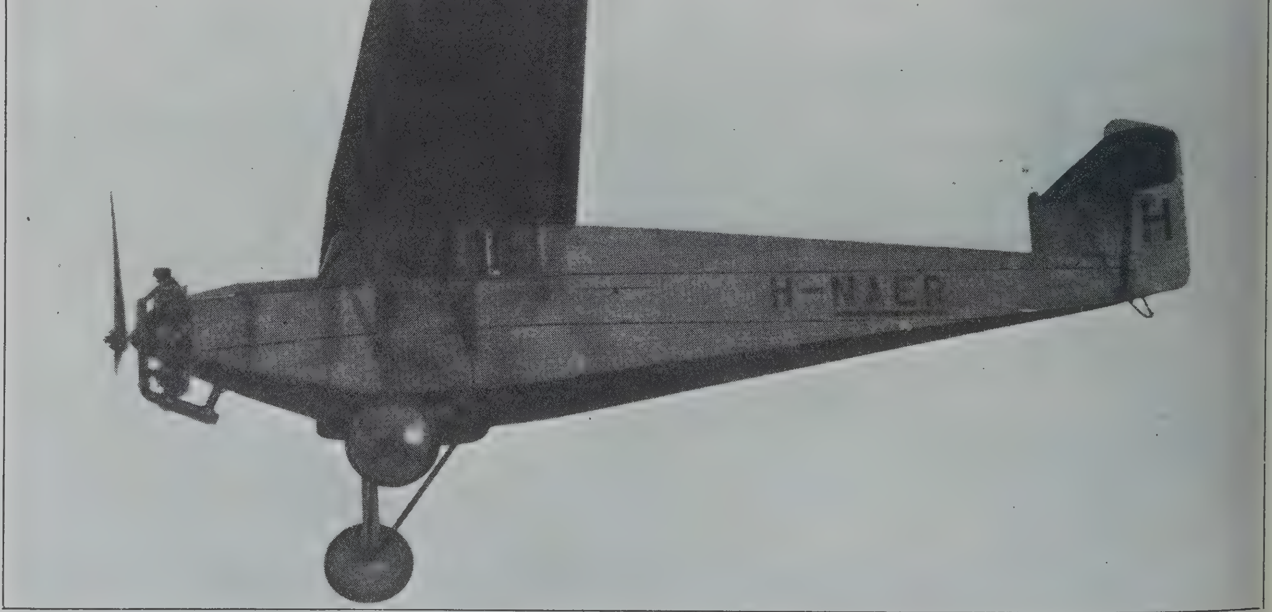
Then people took to fitting them to light aeroplanes, als as a life-saving device. But the curious thing is that o light aeroplanes they are fitted to the upper planes only where there are no ailerons. The effect of this is peculia and it is worth explaining for the benefit of those who ar interested in aviation, but have not taken the trouble, o have not had the time, to study the question.

Lest one be accused by high-browed scientists of wastin time on explaining the obvious, one may as well state tha one has come across quite a number of pilots, R.A.F. an private owners, and club members, who fly well and ye have never understood this simple matter.

SLOTS ON LIGHT AEROPLANES.

The fact is that the upper plane of a biplane stalls befor the lower plane reaches stalling point. This apparently i because the gap between the upper and lower planes itsel acts as a kind of overgrown and rather ineffective slot. Tha is to say, the air passing over the lower plane is held dow by the "interference," as it is called, of the upper plan and so is forced to flow more or less smoothly over th lower plane without breaking. (This breaking of the ai stream, which causes a plane to stall and lose its lifting power, is technically called "burbling.")

When a biplane without slots is stalled, although th lower plane and its ailerons may still be working more o less effectively, the upper plane merely becomes a useles mass of top-hamper and naturally tries to fall over. If ther happen to be ailerons on the upper plane the pulling dow of the aileron on one side instead of lifting that wing-tip puts a brake on that side and tends to pull the machin round and down into a spin on that side. If there are n



THE LATEST FOR THE SPORTSMAN.—Mr. M. L. Bramson and the Koolhoven F.K.41 at Croydon. In this machine Mr. Bramson and Mr. Marcel Desoutter flew back to Rotterdam in thick fog last week.

("*Aeroplane*" *photograph.*)

Flight-Lieut. D. D'Arcy Greig, D.F.C., A.F.C., R.A.F., flying a Supermarine-Napier seaplane, fitted with Napier aero engine, on Nov. 4th, 1928, secured the—

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ailerons on the upper plane, there is still the weight of the plane tending to fall over sideways.

When slots are fitted to the upper plane only of a biplane which has no ailerons on the upper plane all that is done, in effect, is to fit a couple of sky-hooks to the corners of the upper plane and so give it a certain amount of pendulum stability.

In such instances the slots are not really being used for lateral control at all. They are simply being used to prevent the upper plane from toppling over. They merely prevent two short outer sections of the upper plane from stalling, —and the effect would be much greater if they extended all along the plane.

The Proper Use of Slots.

According to practical tests, the proper way to use slots for lateral control is to couple them to the ailerons in such a way that when the aileron on one side is pulled down to give extra lift on that side, the slot on the same side is opened to give extra lift, and also to direct the air-stream onto the aileron and keep it effective. At the same time the slot on the other side should be closed, so as to kill the lift on that side and force it to drop.

This has been done on several experimental machines. In all of these the mechanism has been so heavy and clumsy that the advantage of the slots has been outweighed by the extra weight. And in the particular type evolved by the official experts at the Royal Aircraft Establishment at Farnborough the mechanism was such that although the slot on one side was open when the aileron was down and the slot on the other side was shut when the aileron was up, both slots were slightly open when the ailerons were in the neutral flying position and the partially opened slots killed the speed of the machine.

There should be no particular mechanical difficulty about coupling the slots to the ailerons by wires with a suitable amount of slack in a suitable place so that the slots would open automatically when the machine was in a stalled position and so that when one aileron was pulled up the wire would tighten and pull in the slot on that side, leaving the other wire slack so that the slot on the other side would remain open while the aileron was down.

One of the objections which has been raised against the automatic slot is that when it is flying in a bumpy wind the upward curl of gusts may catch the leading edge of the wing underneath and throw the slots open. Here again there ought to be no difficulty in fitting quite a simple arrangement of wires which would hold the slots closed until released by a simple catch, when they were needed for landing, or when flying slowly low down.

A device of this kind would naturally be of advantage to flying instructors. They could then lock the slots and teach pupils to fly as if they were on machines without slots, and yet would be able to release the slots at once, either when the pupil stalled the machine, or when the pupil had to be taught how to use slots properly.

So far one has only put forward a few general remarks on the use of slots as a means of maintaining lateral control as a life-saving device. Now we may consider quite briefly the proper use of slots for the purpose for which they were origir ally intended, namely, for lifting and landing.

Further Developments.

When the slot device was first made public Mr. Handle Page prophesied a time when wings would be built up of series of slots, like a Venetian blind. The idea was tha when an aeroplane was starting the wings would be presented to the air at an agle of 45° or so, and the machin would lift at about half the speed, and with less than hal the length of run which is needed at present.

The first practical demonstrations which were given of slotted wing in the air were intended to demonstrate hov slots could reduce the speed of getting-off and landing Slots were fitted all along the edges of both planes of D.H.9.

The slots were opened by hand-worked levers,—for automatic opening had not then been discovered. That is i accord with the history of all mechanisms. They begin b being heavy and complicated, then the designers (to quot Mr. Bill Stout's motto) " simplicate and add more lightness." Then someone perceives a still simpler method which ough to have been obvious at the start. Which is why the automatic slot has only arrived seven or eight years after th slot was invented.

To present the wings (or planes) of that old D.H.9 to the air at such an angle as to get the best work out of the slots the machine was mounted on a long-legged undercarriage which made the whole thing ugly and ungainly anc clumsy. In use, when the machine was dropped flat to show what the slots were worth in slow landing, the undercarriage was sometimes damaged, and the tail-skid also suffered.

Naturally, people who did not understand the idea of the slots thought that high undercarriages, which killed speec in the air and/or were liable to break in landing, could no be avoided if slots were used. That created a prejudice against slots at the start.

After that the Air Ministry ordered several machines with slots, mostly for the R.A.F., and at least one Civil machine Some did well in deck-flying experiments on aircraft-carrier ships,—where a short get-off and alighting are very important. But the machines were experiments in genera design, as well as in slotted wings, and (in theatrical language) " failed to attract."

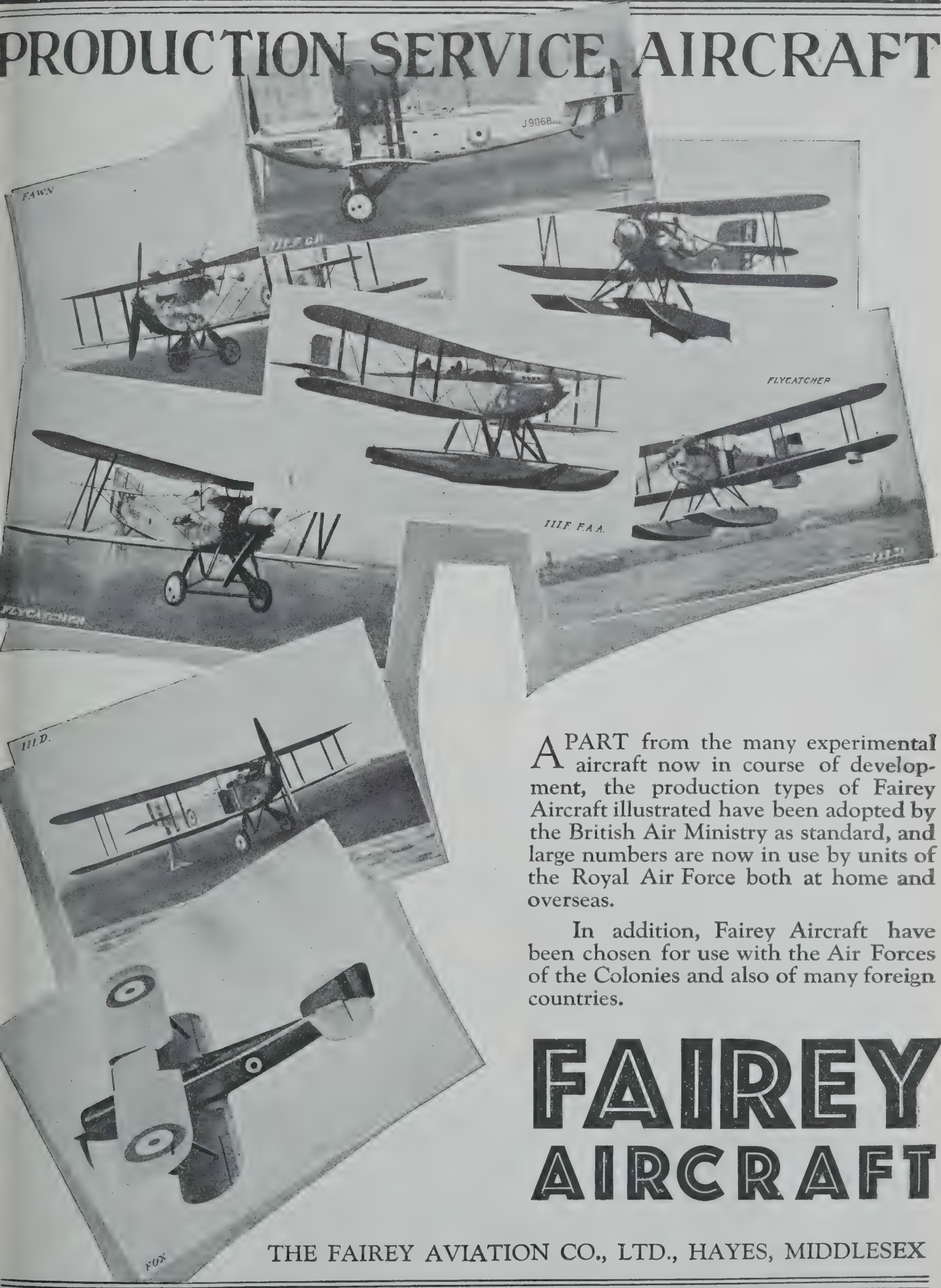
The result has been that, apart from these experimenta machines, and one or two built in Germany, thanks to Dr Lachmann, who invented the slot idea about the same time as did Handley-Page Ltd., and had the good sense to join forces with that firm, there have not been any efforts, either official or commercial, to develop the slot idea to its logical conclusion,—so far as full-sized aeroplanes are concerned, at any rate. One believes, however, that all the claims originally made for the slot device still stand, and have been confirmed by later experiments in wind-tunnels.

The Venetian blind idea is in fact one of the oldest schemes for aeroplane wings. It was tried by the late Horatio Phillips in England in 1884 and thereabouts. It is only a logical development of the biplane into a multiplane.

Triplanes were used successfully in the War 1914-18, on both sides. They were built by the Sopwith Aviation Co., and by Mr. Anthony Fokker. And a quadruplane was built

WITHOUT SLOTS.—An Avian Autogiro recently tested at Hamble.

PRODUCTION SERVICE AIRCRAFT



APART from the many experimental aircraft now in course of development, the production types of Fairey Aircraft illustrated have been adopted by the British Air Ministry as standard, and large numbers are now in use by units of the Royal Air Force both at home and overseas.

In addition, Fairey Aircraft have been chosen for use with the Air Forces of the Colonies and also of many foreign countries.

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The really difficult problem is to construct a multiplane which can be made to close up into a solid monoplane when it is in the air. But the problem is mechanical rather than aerodynamical, and there seems no reason why it should not be solved some day, if enough money can be spent on experiments, and if it be tackled by competent engineers and not by officialised amateurs.

A Line of Experiment.

A year or two before the outbreak of war in 1914, a M. Paul Schmitt built a big biplane in France which had the whole wing-structure, or cellule, constructed so that the angle of the wings could be varied in relation to the fuselage. The idea was to help it to get off at low speeds with a big load. And it did it, according to the notions of those days.

It was in fact used for bombing in the early days of the War. It lifted more bombs than any machine of the time. But, unfortunately, after three or four expeditions it disappeared on the German side of the lines,—and, if one's memory is right, M. Schmitt disappeared with it.

The way the thing worked was quite simple. The whole wing cellule, instead of being fixed to the fuselage, was mounted on a big steel tube, which tube was carried on bearings, or trunnions, built into the fuselage. The tube was rotated by a worm-gear worked by hand.

Thus the machine was able to run along with the fuselage (and the tail unit, naturally) in flying position, in relation to the air, and with the wings at their maximum angle of attack. When it was in the air the wings were flattened out to their best flying angle,—the fuselage and tail remaining all the time at their best angle for head-resistance and for control.

There seems at least a possibility of adapting this idea to a slot-winged machine. With such a device there is no need for a stalky undercarriage. In fact a machine with a deep cabin need have practically no undercarriage at all,—merely enough to give travel to the springing of the wheels. Or, if wheels with internal springs be used, there need not even be that.

At any rate, with little or no undercarriage, the wings could be presented to the air at the greatest angle at which the slots (along the whole leading edge) would allow them to lift. And the fuselage would get off and land nearly level, without raising or dropping the tail more than was necessary to control the fore-and-aft movement of the machine.

That is an experiment which could be tried without any vast expense. But its development would need much time and money.

A Possible Development.

From that idea one may imagine a monoplane with a properly streamlined fuselage,—say like the Lockheed Vega, which, with its Curtiss-cum-Fairey lines, is streets ahead of any cabin-monoplane in the World. (We don't make cabin-monoplanes in this country, yet, so for once nobody in the British Aircraft Trade can feel offended.)

This monoplane would have on top of it a cantilever wing mounted on a huge tube which would be rotatable through about 60° in relation to the fuselage. And this wing would be composed of a number of slats, each of aerofoil section, attached at each end to a kind of parallel-ruler arrangement, so that when the tube was rotated to its maximum angle they would form a Venetian blind, each slat of which was an aerofoil.

One presents the scheme to the Aircraft Industries of the World. There's many a true word spoken in jest. And one has, in one's own days seen many crude ideas, which seemed crazy at the time, turned into money-making propositions by young engineers who were free from the case-hardened conventions of their seniors.

Perhaps this idea is foolish. ("May-be I'm crazy,—may-be I know," as the song says.) But perhaps it may set some brainy young man thinking along lines which will get us away from the old-fashioned fixed ideas which have held up progress since the slot came into being eight years ago.

Surely by this time we ought to be done with the stick-and-string biplane, and attempts to reproduce it in steel, or aluminium, and wire. Surely the cantilever monoplane (or biplane) justified itself in the later days of the War, and has confirmed its usefulness and its possibilities since then.

Surely we have let enough people kill themselves on machines of types which, though built this year, ought to have been scrapped ten years ago. Surely we have wasted enough money trying to make Civil Aviation pay with machines which obviously cannot earn their own keep.

Flying can be made as safe as motoring on the road,—which isn't saying much. And Civil Aviation *can* fly by itself,—as Mr. Churchill suggested nearly ten years ago. So, for Heaven's sake,—Messieurs of the Air Ministry and of the British Aircraft Trade—let us get a move on, and do something about it.—C. G. G.

THE MACHINERY OF R.101.

A paper by Wing Commander T. R. Cave-Browne-Cave was read before the Royal Aeronautical Society on Nov. 8, described the installation of the machinery of the new rigid airship R.101 in some detail. The author expressed the opinion that lack of reliability of machinery had in the past limited the use of airships more than any other factor, and that the use of petrol had caused the greatest risk of fire.

In designing the installation of the machinery of R.101 safety from fire had been sought by the use of heavy oil as a fuel, which was only possible with a new engine, which had been developed by William Beardmore and Co. Ltd. Reliability, which was perhaps prejudiced by the use of a new engine, had been sought in the design of the installation and in the preparations made for test. Each engine was mounted as a self-contained unit which could be removed and replaced by another when the airship was at the mooring mast. And each unit could be mounted on a gantry and there tested under conditions similar to those in the air.

R.101 had five identical power units, the aftermost on the centre-line to give a good flow over the rudder at low speeds, and the others in two pairs abreast, one pair well ahead and the other well astern of the passenger quarters.

The designers hoped that each engine would develop 700 b.h.p. at 1,000 r.p.m., but the Beardmore Tornado engines now available were able to develop 585 b.h.p. continuously, with a maximum of 650 b.h.p.

These engines were of the eight-cylinder-in-line type, 8¼ in. bore by 12 in. stroke, with the Beardmore solid fuel injection gear, giving a consumption of fuel of 0.385 lbs. per b.h.p.-hour at continuous full power and a slightly better consumption at lower power. The fuel itself had such a high flash-point that it had to be heated to the boiling temperature of water before it gave off any inflammable vapour.

The eight-cylinder-in-line arrangement, with its long crankshaft, was subject to torsional resonance at relatively low speeds. This trouble had been the most serious encountered in the development of the engine. On airscrew test at Farnborough torque variations twenty times the normal had been measured as the result of resonance at a speed of 950 r.p.m.

Without a complete redesign of the engine it was possible only to increase certain crankshaft dimensions. New shafts were so much stiffer than the old ones that they put the major critical speed beyond the normal speed-range. But there were still minor critical speeds within the working range, and the designers had therefore fitted a damper fly-wheel at the rear end of the crankshaft.

These engines weighed 8 lbs. per h.p., but there was no reasonable doubt that this figure would be halved when the design had been further refined. Against this excessive dead weight was to be set an economy of 30 per cent. in the weight of fuel compared to the petrol engine.

Starting of the main engines was by means of an auxiliary petrol engine of 40 h.p. which drove the main engine through a 20-to-1 reduction gear and a Bendix pinion. One inlet valve in each cylinder was lifted and the engine was timed at about 100 r.p.m. until fuel was being steadily delivered to each oil sprayer. The speed was slightly increased, the inlet valves were allowed to function and the engine started at once.

Variable and reversible pitch airscrews had been designed for the airship. Originally hollow steel blades were to have been used. These, however, failed under the abnormal torsional resonance of the crankshaft during a test, and as the roots of this type of blade were difficult to strengthen they had decided to use solid light-alloy blades.

As a temporary precaution against delay in developing these blades, wooden airscrews of fixed pitch were being built. One of these was designed solely to give thrust astern, to retard the airship when approaching the mooring mast.

The engines were evaporatively cooled. The jackets were kept filled with water, which was converted to steam, which was then condensed. The condensers, they hoped, would eventually be fabric ducts formed in the outer cover of the ship, producing no increase of drag. Preliminary tests with such ducts had proved satisfactory, but pending actual tests triangular honeycomb condensers had been provided.

Fuel was carried in tanks, each of a capacity of 224 gallons, to a total amount of 29 tons. From the storage tanks the oil flowed under gravity to a transfer tank, whence it could be blown by compressed air either to the supply tanks over each engine unit, or to other storage tanks for trimming ship.

Water ballast was also moved by compressed air to trim ship.

To allow the dropping of oil fuel in emergency, certain of the fuel tanks were fitted with jettison valves. These consisted of a disc of 12 inches diameter of 28 gauge aluminium sheet in the bottom of each such tank, with, beneath it, a cutter-ring carrying seven knives which could be raised and rotated to cut out the disc. A 224 gallon tank could be emptied in this way in eleven seconds.

The auxiliary engines not only started the main engines but three of them drove electric generators and the other two drove air compressors for the fuel and water-ballast system. Fuel for these engines was carried only in the engine-cars, and the tanks were arranged so that they might be dropped in emergency.

A fourth generator driven by a constant speed windmill was able to supply all the electric auxiliaries in the ship whenever the air speed was 40 m.p.h. or more.

To supply high-temperature steam for cooking purposes an experimental exhaust-heated boiler was designed and tested with satisfactory results. As it had been decided to do all cooking electrically this would not be used.

In the design of the main engine installation accessibility for minor repairs in the air had been carefully studied. The engineer on duty in each car could pass along each side of the engine and could reach all pipes or joints on the engine He could even remove a cylinder-head, piston and connecting-rod in the air.

The complete paper will appear in due course in the Journal of The Royal Aeronautical Society.

Let Others Testify!

LONDON—AUSTRALIA.

"The continuous reliability and smooth running of my CIRRUS engine during the whole of the flight almost became monotonous, no replacements, and inspection at Darwin showed engine to be in excellent condition.—HINKLER."

"Mr. Hinkler's great flight adds to a long and impressive series of triumphs of this engine (CIRRUS), which undoubtedly is one of the finest in the world."—THE DAILY TELEGRAPH, 23rd February, 1928.

"The regularity of Mr. Hinkler's progress speaks volumes for the efficiency of his equipment and his own skill."—THE TIMES, 23rd February, 1928.

"Engine has behaved magnificently throughout. Flew with seventeen hundred and eighty pounds total weight to Darwin in terrible weather heavy rains.—LANCASTER."

LONDON—CAPETOWN.

"Engine ran faultlessly throughout flight. Healthy exhaust note inspired peace of mind over sea and forest. Returned Pretoria via East Coast, making total mileage 9,000 approximately.—BENTLEY."

"His flight stamps Mr. Bentley as being worthy to rank with the world's great pilots. And once again the little De Havilland MOTH with its simple A.D.C. CIRRUS engine has proved worthy to rank with the world's great aeroplanes."—THE AEROPLANE, 5th October, 1927.

"It would be difficult to imagine anything more calculated to demonstrate the stage of reliability reached by a modern light aeroplane, and its relatively low-powered engine, than a flight such as this."—FLIGHT, 6th October, 1927.

CAPETOWN—LONDON.

"During seventy hours' touring South Africa and carrying first light aeroplane from Cape to Cairo time-honoured route, the magnificent CIRRUS in my AVIAN never missed a beat or dropped a revolution, although in Southern Rhodesia experienced tropical deluge and in Sudan thermometer showed hundred twenty Fahrenheit.—HEATH."

ORLY. LIGHT PLANE COMPETITION.

"CIRRUS engine performed perfectly throughout competition stop only passenger carrying machine to gain full points on reliability tour stop also fastest time on tour.—PERCIVAL."

U.S.A. TRANSCONTINENTAL AIR RACE.

"The CIRRUS engine by surviving such a long race with no mechanical trouble, came in for a lot of admiration.

"The only spares carried were four sparking plugs and two spare valves and valve springs. None of these were required."—THE AEROPLANE, 10th October, 1928.

"THE TIMES" Engineering Supplement, January 7th, 1928.

"In most cases the power unit in these aircraft has been the CIRRUS air-cooled four-cylinder-in-line engine, and it is no exaggeration to say that this engine has not only made the Light Aeroplane of to-day possible, but has established an unquestioned reputation for reliability, low maintenance costs and capacity to run for long periods with little more attention than a motorist gives to his car engine."

SIR ALAN J. COBHAM'S OPINION.

"The all essential to a pilot's comfort and ease of mind, is absolute confidence in his engine.

"I believe that the only light aeroplane engine that is suitable for the private owner is one that is perpetually reliable, simple to maintain and will give continual long running without overhaul. From my experience I think the CIRRUS engine comes up to this standard.

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ENGINE

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England—Australia with passenger.
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London—India, 2 machines, both solo.
Round South Africa, 2,400 miles in 28 hrs.
London—Capetown (Lady Pilot).
Capetown—London (Lady Pilot).
London—Capetown in 13 days.
1st King's Cup Air Race, 1926.
1st King's Cup Air Race, 1927.
Britannia Trophy, 1927.
Siddeley Trophy, 1928.
1st in Reliability and Quality at French Light Plane Meeting at Orly. 1928.

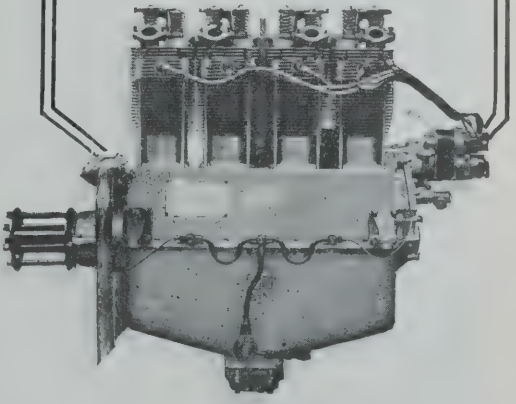
———o———

CIRRUS Engines are in use in
The British Royal Air Force,
50 Light Aeroplane Clubs, and
26 Different Countries,

and are fitted in

Avro "Avian."	**D.H. "Moth."**
Westland "Widgeon."	**Simmonds 'Spartan."**
Short "Mussel."	**Blackburn "Bluebird."**

and
20 Different Types of Light Aeroplanes being manufactured abroad in various countries.



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THE ROYAL AIR FORCE.

The London Gazette.

November 6.

Royal Air Force.

General Duties Branch.—The following are granted S.S. comns. as Plt. Offs. on probation with effect from and with seniority of Nov. 2:—A. H. Abbott, F. S. Barron, A. G. M. Cary, C. B. Field, E. G. Granville, N. R. G. Hunter, R. I. Johnson (Sec. Lt., 67th Field Bde., R.A., T.A.), J. A. Lawson (Lt., A.I.R.O.), H. L. McCulloch, R M. Messiter, G. F. P. O'Farrell, O. J. O'Hara, C. E. W. N. C. Pelly, C. Sarsfield-Sampson, W. H. E. Tew, R. W. Wallace, E. C. A. Wheeler, T. E. Whittome.

The following are promoted with effect from Nov. 7:—

Flt. Lts. to be Sq. Ldrs.—L. H. Cockey, J. W. B. Grigson, D.S.O., D.F.C., L. O. Brown, D.S.C., A.F.C., R. Jope-Slade, D.S.C., W. Underhill, D.S.C.

Flg. Offs. to be Flt. Lts.—H. T. Herring (Hon. Flt. Lt.), C. H. A. Stevens, J. H. C. Wake, E. S. C. Vaughan, M.C., W. F. R. Gough (Hon. Flt. Lt.), E. C. Dearth, C. W. McK. Thompson, S. P. George.

Flg. Off. J. Constable-Roberts is transferred to the Reserve, Class A (Nov. 1); Flg. Off. J. F. Young is transferred to the Reserve, Class C (Nov. 1); Flg. Off. F. H. Bailey resigns his S.S. comn. (Oct. 19); Lt. A. M. Kimmins, R.N., Flt. Lt., R.A.F., ceases to be attached to the R.A.F. on return to Naval duty (Nov. 5).

The following Lts., R.N., Flg. Offs., R.A.F., cease to be attached to the R.A.F. on return to Naval duty:—G. R. M. Robertson (Sept. 5); J. H. F. Burroughs (Oct. 20).

The S.S. comn. of Plt. Off. on probation W. C. Garrett-Petts is terminated on cessation of duty (Nov. 5).

Stores Branch.—The following Plt. Offs. on probation are confirmed in rank and promoted to the rank of Flg. Off.:—B. Allen, C. L. Thomson, E. F. Smith, A. Connock, M. E. O'B. Atkinson (Oct. 15); A. H. E. Frost (Oct. 19).

Medical Branch.—Flg. Off. (Quartermaster) P. H. Musgrave is promoted to the rank of Flt. Lt. (Quartermaster) (Nov. 3).

Reserve of Air Force Officers.

General Duties Branch.—The following officers are transferred from Class A to Class C:—Flt. Lt. W. E. C. B. C. Forsyth (Oct. 24); Flg. Off. A. C. Heaven, M.C. (May 12); Flg. Off. H. Rhodes (Oct. 13). Flg. Off. J. D. Parkinson is transferred from Class AA to Class C (Sept. 22); Flg. Off. H. J. Phillips is transferred from Class C to Class AA (Oct. 29); Flg. Off. R. K. Rose resigns his comn. (April 1).

Plt. Off. on probation J. H. Dixon relinquishes his comn. on account of ill-health (Nov. 7).

Sq. Ldr. M. E. A. Wright relinquishes his comn. on completion of service and is permitted to retain his rank (Aug. 1).

Special Reserve.—Plt. Off. C. E. W. N. C. Pelly resigns his comn. on appointment to a S.S. comn. (Nov. 2).

Auxiliary Air Force.

General Duties Branch.—No. 603 (City of Edinburgh) (Bombing) Squadron.—The following to be Plt. Off.:—A. M. Mitchell (Sept. 29).

Appointments.

Week ending November 12.

General Duties Branch.—Air Vice-Marshal Sir Brooke-Popham, K.C.B., C.M.G., D.S.O., A.F.C., to H.Q., 'Iraq Command, pending taking over command, 1/11.

Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., to H.Q., Fighting Area, Uxbridge, for Air Staff Duties, 1/10.

Group Captain W. R. Freeman, D.S.O., M.C., to R.A.F. Training Base, Leuchars, pending taking over command, 27/10.

Wing Commanders F. E. T. Hewlett, D.S.O., O.B.E., to H.M *Furious*, for duty as Senior Air Force Officer, 8/10. C. W. H. Pulfo O.B.E., A.F.C., to R.A.F. Depot, Uxbridge, pending commencement next course at Imperial Defence College, 16/10. V. Gaskell-Blackbu D.S.C., A.F.C., to R.A.F. Depot, Uxbridge, 1/11.

Squadron Leaders G. D. Nelson, D.S.C., A.F.C., to R.A.F. Dep Uxbridge, 6/10. R. H. Kershaw, to R.A.F. Base, Malta, 30/10. N. Bottomley, A.F.C., to No. 4 Sqdn., S. Farnborough, 15/10. V. Gre wood, to H.Q., Fighting Area, Uxbridge, 2/10. J. C. Slessor, M.C., Air Ministry (D.O.I.), 15/10.

Flight Lieutenants R. V. Goddard, to Air Ministry (D.O.S.D.), 22/ G. Martyn, to No. 1 Air Defence Group H.Q., 1/10. L. W. Jarvis, No. 504 Sqdn., Hucknall, 1/12. W. J. Daddo-Langlois and R. Horniman, to No. 482 Flight, Cattewater, 7/11. W. E. G. Mar D.F.C., to R.A.F. Station, Northolt, 11/11. C. Chapman, D.S.C., R.A.F. Station, Upavon, 18/12. A. P. Revington, to No. 482 Flig Cattewater, 14/10. G. L. Omerod, to H.Q., Wessex Bombing Ar Andover, 17/9. O. E. Worsley, to No. 503 Sqdn., Waddington, 3/

Flying Officers J. W. M. Nancarrow, to R.A.F. Depot, Uxbrid 12/10. H. D. Gunton, to R.A.F. Depot, Uxbridge, 2/11. R. F. Shent and H. F. G. Southey, to No. 482 Flight, Cattewater, 14/10. C. Lucas, to R.A.F. Depot, Uxbridge, 12/10. W. G. Abrams, to No. 4 Flight, Cattewater, 10/10. G. L. G. Richmond, to No. 10 Sqdn., Upp Heyford, 5/11. N. A. P. Pritchett, to R.A.F. Training Base, Leucha 12/11.

Pilot Officers.—The undermentioned Pilot Officers are posted to t R.A.F. Depot, Uxbridge, on appointment to S.S. Comns. (on probatio with effect from 2/11: A. H. Abbott, F. S. Barron, A. G. M. Car C. B. Field, E. G. Granville, N. R. G. Hunter, R. I. Johnson, H. McCulloch, R. M. Messiter, G. F. P. O'Farrell, O. J. O'Har C. E. W. N. C. Pelly, C. Sarsfield-Sampson, R. W. Wallace a T. E. Whittome.

Medical Branch.—Squadron Leader A. F. Rock, M.R.C.P., D.P.H., R.A.F. Pathological Laboratory, Halton, 1/12.

Stores Branch.—Flight Lieutenant P. J. Murphy, to Supply a Stores Depot, Aden, 2/11.

Flying Officers W. H. Bowden, to R.A.F. Station, Northolt, 7/1 C. P. Marshall, to R.A.F. Station, Tangmere, 7/11. R. N. Hesket to No. 4 Stores Depot, Ickenham, 12/11. B. G. Pool, to No. 1 School T.T. (Apprentices), Halton, 12/11.

Pilot Officers G. Matthews, to No. 3 F.T.S., Grantham, 12/11. L. Oldridge, to No. 1 S.D., Kidbrooke, 12/11. J. S. French, to Scho of Balloon Training, Larkhill, 12/11. E. J. H. Starling, to No. School of T.T. (Apprentices), Halton, 12/11. J. W. Hunt, to No. F.T.S., Digby, 12/11. P. V. Edwards, to No. 5 F.T.S., Sealand, 12/1 J. E. Reynolds, to R.A.F. Depot, Uxbridge, 12/11. F. G. Lee, to No. F.T.S., Netheravon, 12/11.

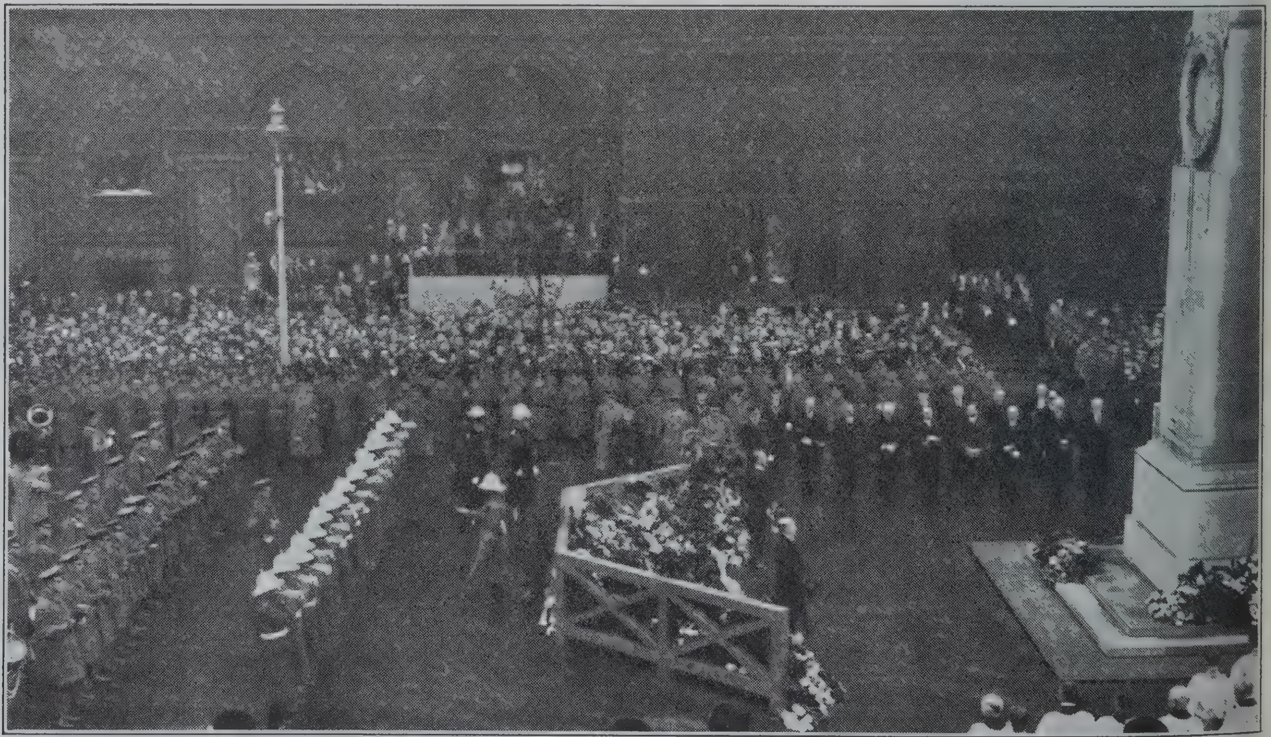
Accountant Branch.—Flight Lieutenant K. R. Money, O.B.E., M.A.E.E., Felixstowe, 27/10.

Chaplains Branch.—The Rev. G. H. Collier, M.A., to R.A.F. Bas Calshot, 26/11.

The Armistice Day Ceremonies.

A detachment of the Royal Air Force formed part the Guard of Honour at the Armistice Day Ceremony at th Cenotaph in Whitehall on Nov. 11.

Buglers of the Royal Air Force sounded the Last Pos



ARMISTICE DAY, 1928.—The R.A.F. Guard of Honour at the Cenotaph during the Armistice Day ceremonies. On the left are the R.A.F. Buglers who sounded the Last Post and the Reveillé.

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at the end of the Two Minutes' Silence and the Reveillé at the end of the Service.

The bearing and march discipline of the R.A.F. compared well with that of the Guards and other representative detachments on parade.

Marshal of the Royal Air Force Sir Hugh Trenchard laid a wreath on the Cenotaph on behalf of the Royal Air Force.

Among the representatives of the Ex-Service Organisations present at the ceremony were 45 members of the Old Comrades' Association of the Women's Royal Air Force. A wreath was laid on the Cenotaph on their behalf by a member of the Association.

A short ceremony was held at 11.30 hours at the R.A.F. Memorial on the Embankment. Marshal of the Royal Air Force Sir Hugh Trenchard laid a wreath on the Memorial on behalf of the R.A.F. Memorial Fund. Wing Cdr. W. H. Anderson, D.F.C., Australian Liaison Officer, laid a wreath on the Memorial on behalf of the people and the Commonwealth of Australia. Sq. Ldr. A. L. Cuffe, Canadian Liaison Officer, laid a wreath on the Memorial on behalf of the Royal Canadian Air Force.

A representative of the Women's Royal Air Force Old Comrades' Association also laid a wreath on the Memorial, contributions for which had been received from members of the Association all over the World. By mid-day the R.A.F. Memorial was surrounded by flowers sent from Squadrons, from former members of Squadrons, and from relatives of the fallen.

An Award for Gallantry.

The *London Gazette* for Nov. 9 announces that His Majesty the King has approved the award of the Medal of the Military Division of the Order of the British Empire to No. 363339 L-AC. Walter Arnold, Royal Air Force, for conspicuous gallantry displayed at Digby Aerodrome on June 20, 1928.

Arnold was a passenger in a machine which was wrecked on landing and immediately caught fire. Arnold extricated himself from the burning wreckage, and, although fully aware of the grave risk he was taking, re-entered the flames and succeeded in dragging the pilot, who was unconscious and very severely injured, to a position of safety. Arnold suffered burns to his face, neck, and hands, and his prompt and courageous action undoubtedly saved the pilot's life, since the burning petrol spread rapidly and rendered any subsequent approach to the wreckage impossible.

An Award to a Steam Trawler's Crew.

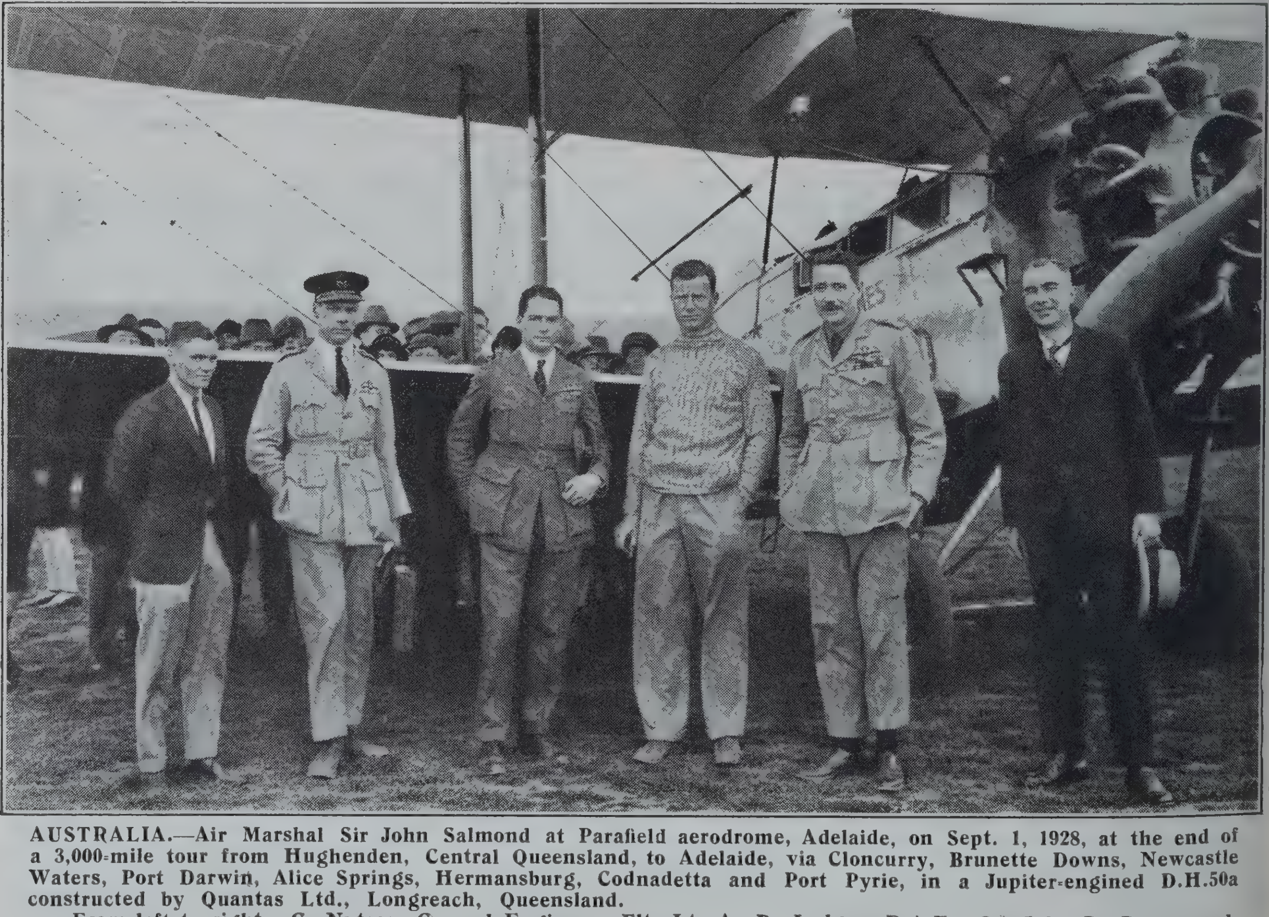
The Air Ministry announces that the Air Council have awarded a piece of plate to Mr. Harry Reeve, Skipper of the steam trawler *Kittiwake* of Lowestoft, and a sum of money to the Mate, Chief Engineer, and six other members of the crew, in recognition of their services in effecting the rescue of the officers and airmen of Southampton Flying Boat No. 1125 which came down in Cardigan Bay on June 30, 1928.

The Board of Trade have been requested by the Air Ministry to present these awards on behalf of the Air Council.

AUSTRALIAN AIR DEFENCE.—Air Marshal Sir John Salmond talking to Mr. West of the Shell Co. of Australia Ltd. during Sir John Salmond's Australian tour. In addition to his 3,000 miles in a Quantas D.H.50, Sir John Salmond flew from Melbourne to Point Cook, Sydney, Brisbane and Darwin in an R.A.A.F. Supermarine Southampton piloted by Flg. Off. Briggs, R.A.A.F.

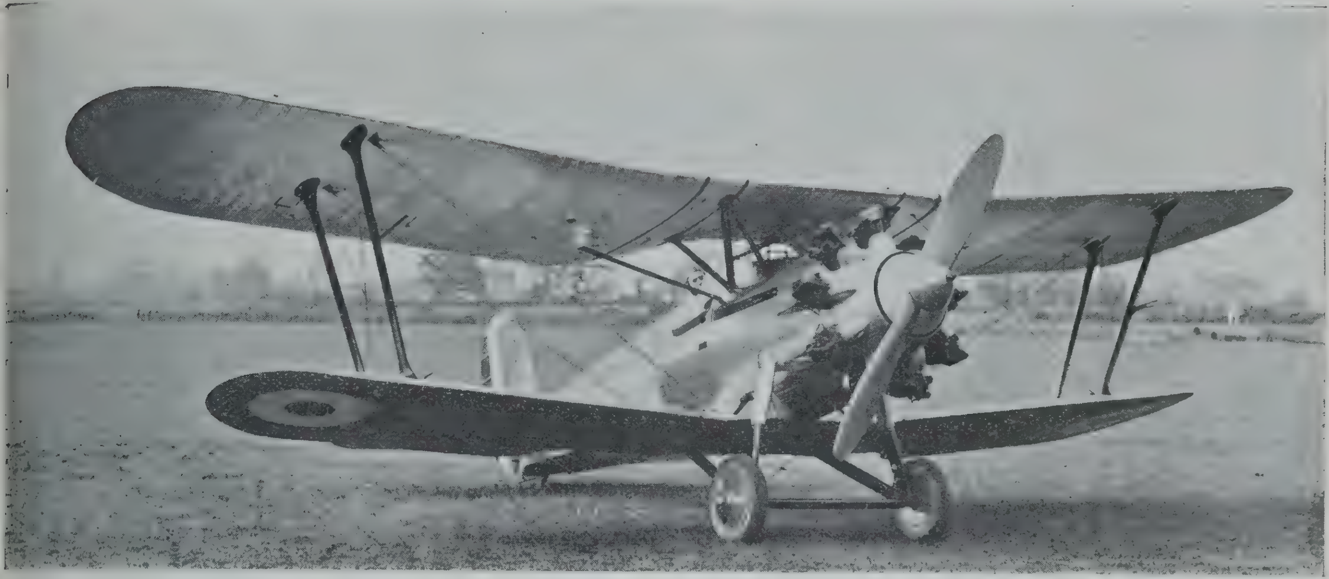
The Far East Flight.

The Far East Flight, R.A.F., which left Singapore on Nov. 1 on a six-weeks' cruise, arrived at Manila on Nov. 9. They were received by representatives of the United States Air Services. Some of the personnel were the guests of the U.S. Aeroplane Tender *Jason* and some of them were the guests of the Army and Navy Club.



AUSTRALIA.—Air Marshal Sir John Salmond at Parafield aerodrome, Adelaide, on Sept. 1, 1928, at the end of a 3,000-mile tour from Hughenden, Central Queensland, to Adelaide, via Cloncurry, Brunette Downs, Newcastle Waters, Port Darwin, Alice Springs, Hermansburg, Codnadetta and Port Pyrie, in a Jupiter-engined D.H.50a constructed by Quantas Ltd., Longreach, Queensland.

From left to right: G. Nutson, Ground Engineer; Flt. Lt. A. P. Ledger, R.A.F.; Sq. Ldr. P. Drummond, D.S.O., O.B.E., M.C., R.A.F.; C. W. A. Scott (Pilot), Quantas Ltd.; Air Marshal Sir John Salmond, and Mr. A. B. West, The Shell Co. of Australia Ltd., Adelaide.



"Better than anything in the World"

This is how the "Evening News" of Oct. 13, 1928, described the new "Bristol" Bulldog Single-Seater Fighter. "The Air Ministry," announced this journal, "recently held a competition to find a single-seater fighter which had a speed and climb far and away above that of current craft. Eleven different types were presented and eventually the 'Bristol' Bulldog was selected. This machine has now been put into production."

The "Bristol" Bulldog is a high performance single-seater fighter constructed from steel according to the proved "Bristol" methods; a machine of remarkable performance, strong in construction and easy of upkeep and repair.

The "Bristol" BULLDOG SINGLE SEATER FIGHTER

THE BRISTOL AEROPLANE CO., LTD., FILTON, BRISTOL

Sir Philip Sassoon's Cruise.

Sir Philip Sassoon, Under-Secretary of State for Air, who is visiting the R.A.F. Units in India, 'Iraq and the Middle East, flew to Malta from Bengazi on Nov. 8.

Fatal Accidents.

The Air Ministry regrets to announce that as the result of an accident at Preston Moor, Yorkshire, to an Atlas machine of No. 26 (Army Co-operation) Sqdn., Catterick, on Nov. 6, Plt. Off. Charles Lilburn Myers, the pilot of the aircraft, and 359460 AC.2. Henry Chadwick were killed.

At the inquest at Redmire on Nov. 8 evidence was given that they left Catterick Aerodrome on Nov. 6 for a short flight, but failed to return. After a search lasting 30 hours the wreckage was found.

Flt. Lt. Hebbert said that he detailed the men for this flight on duty. In his opinion, it was quite a good morning for flying. The object of the flight was to train pilots to pick out certain points and take pin-point photographs.

A verdict of accidental death was returned.

The Air Ministry regrets to announce that as the result of an accident near Boothby Graffoe, Lincolnshire, to an Avro machine of No. 2 F.T.S., Digby, on Nov. 7, Plt. Off. Richard Harold Coupe, the pilot and sole occupant of the aircraft, was killed.

The Air Ministry regrets to announce that as the result of an accident near Buckingham to a Hawker Horsley machine of No. 100 (Bombing) Sqdn., Bicester, on Nov. 8, 351106 Sjt. Herbert Edward Lockwood, the pilot of the aircraft, was killed, and 365544 AC.2. Charles Robert Thane was seriously injured.

The Lord Mayor's Show.

The Lord Mayor's Show procession on Nov. 9 included the Band of the Royal Air Force, a detachment of the Royal Air Force, and the fuselage of a D.H.9a, escorted by a contingent of No. 600 (City of London) Bombing Squadron, Auxiliary Air Force.

If the R.A.F. must take part in this fantastic parade in future, surely the representative Squadron of the Auxiliary Air Force could do something more worthy of a highly efficient Unit than tow a dismantled Nine-ack through the streets.

The North Persian Forces Memorial Medal.

A Fleet Order states that Medical Officers who wish to compete for the 1928 award of the North Persian Forces Memorial Medal should forward copies of their articles to the Medical Director-General of the Navy through the usual Service channels before Jan. 1, 1929.

This medal is awarded annually for the best paper on tropical medicine and hygiene published in any journal by medical officers of under 12 years' service of the R.N., R.A.M.C., R.A.F., I.M.S., and the Colonial Medical Service.

Special Assessments.

The following officers and airmen have been awarded special assessments as shown on completion of a course of *ab initio* flying training at No. 1 F.T.S. :—

Distinguished Pass.—Plt. Off. D. J. T. Haynes, Plt. Off. P. C. Fair, No. 352207 Cpl. Scott, A., No. 363737 L-AC. Salterly, H. V., No. 363771 L-AC. Sheen, W. C.

Notations have been made in the official records of these officers and airmen.

Air Commodore Samson.

Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., who was restored to full-pay from half-pay on Oct. 1, and appointed to Headquarters, Fighting Area, for Air Staff Duties on the same date, was born at Cheetham, Lancashire, in 1883 and educated at Hemel Hempstead, Greenwich, and in H.M.S. *Britannia.* He entered the Royal Navy in 1898 and was promoted Lieutenant in 1904. He served in H.M.S. *Pomone* in the Somaliland operations of 1903-4 and in H.M.S. *Philomel* during the operations in the Persian Gulf in 1909-10.

He was one of the first four officers appointed by the Admiralty to learn to fly, at Eastchurch, early in 1911, and his Royal Aero Club certificate, No. 71, is dated April 25, 1911. In October 1911 he persuaded the Admiralty to buy two Short biplanes and to send twelve Naval ratings to Eastchurch to form the basis of a Naval flying school. He designed, and got leave to build in Chatham Dockyard, a platform with a double trackway from which to start aeroplanes from the decks of ships. This platform was erected on board H.M.S *Africa* and he made a successful flight from it in December 1911. Thereafter, in collaboration with Mr. Horace Short, he helped in the design of a seaplane. The machine was completed in March 1912. He eventually flew 150 hours on this machine without breaking a strut or a float.

Towards the end of 1911 and the beginning of 1912 he was a member of the technical sub-committee which prepared a detailed scheme for the formation of a British Aeronautical Service to be known as the Royal Flying Corps. When this report was completed in February 1921 he was put in charge of the newly formed Naval Flying School at Eastchurch pending the establishment of the Central Flying School. While he was at Eastchurch he made experiments with seaplanes fitted with wireless and experiments in bomb-dropping from the air.

At the King's Naval Review at Spithead on July 20, 1914, he was in command of a Flight of aeroplanes, and after the Review he took the Flight on a tour to Dorchester and Upavon before returning to Eastchurch. On Aug. 10, 1914, he was ordered to establish a base at Skegness and to take charge of a patrol of the coast from the Humber to Cromer. He was in command of the first Naval Air Unit to be sent abroad; the Eastchurch Squadron which flew to Ostend on Aug. 27, 1914. This Unit made daily reconnaissance flights in the area between Bruges, Ghent and Ypres and also took part in various raids in armoured cars in support of the Naval Division. The Unit was withdrawn from Dunkirk in February 1915 and flew back to Dover. An Admiralty Order, dated 11/9/14, states that his promotion to Commander was accelerated in view of enterprise and shrewdness shown by him in re-capturing the City of Lille. For his services while in command of this Unit he was made a Companion of the Distinguished Service Order.

In March 1915 he was ordered to the Mediterranean and took an active and distinguished part in the Dardanelles operations in command of No. 3 Wing. After the evacuation of Gallipoli he was transferred to the aircraft-carrier *Raven II* and took part in operations in the Indian Ocean. He commanded H.M. *Aircraft-Carrier Ben-my-Chree* in the Eastern Mediterranean from April 1916 till June 1917. He was awarded a Bar to the D.S.O. in January 1917 in recognition of his continued gallantry and distinguished services as a flying officer.

On Nov. 5, 1917, he was appointed to command the Naval Air Station at Great Yarmouth, a command which he held until he was appointed to command the Group at Felixstowe in October 1918. He was awarded the Air Force Cross in January 1919.

On the formation of the R.A.F. he was appointed to a permanent commission with the rank of Wing Commander. He was promoted Group Captain in August 1919 and Air Commodore in January 1921. He was made a Companion of the Order of St. Michael and St. George in June 1919. In 1919 and 1920 he was Chief Staff Officer at Headquarters, Coastal Area, R.A.F., and in August 1921, after attending the Senior Officers' War Course at the R.N. College, Greenwich, he was appointed to command the R.A.F. in the Mediterranean.

In 1922 he won the 2nd prize for the Gordon Shepherd Memorial Essay. He was posted to No. 6 Group, Kenley, to command in May 1924 and in June 1926 he was appointed Chief Staff Officer, Headquarters Middle East.

In September 1926 he was in command of the Service Flight of Vickers Victorias which made a cruise from Heliopolis to Aden and back. In March-May 1927 he commanded the Service Flight of four Fairey III.Fs. which flew from Cairo to Cape Town and back.

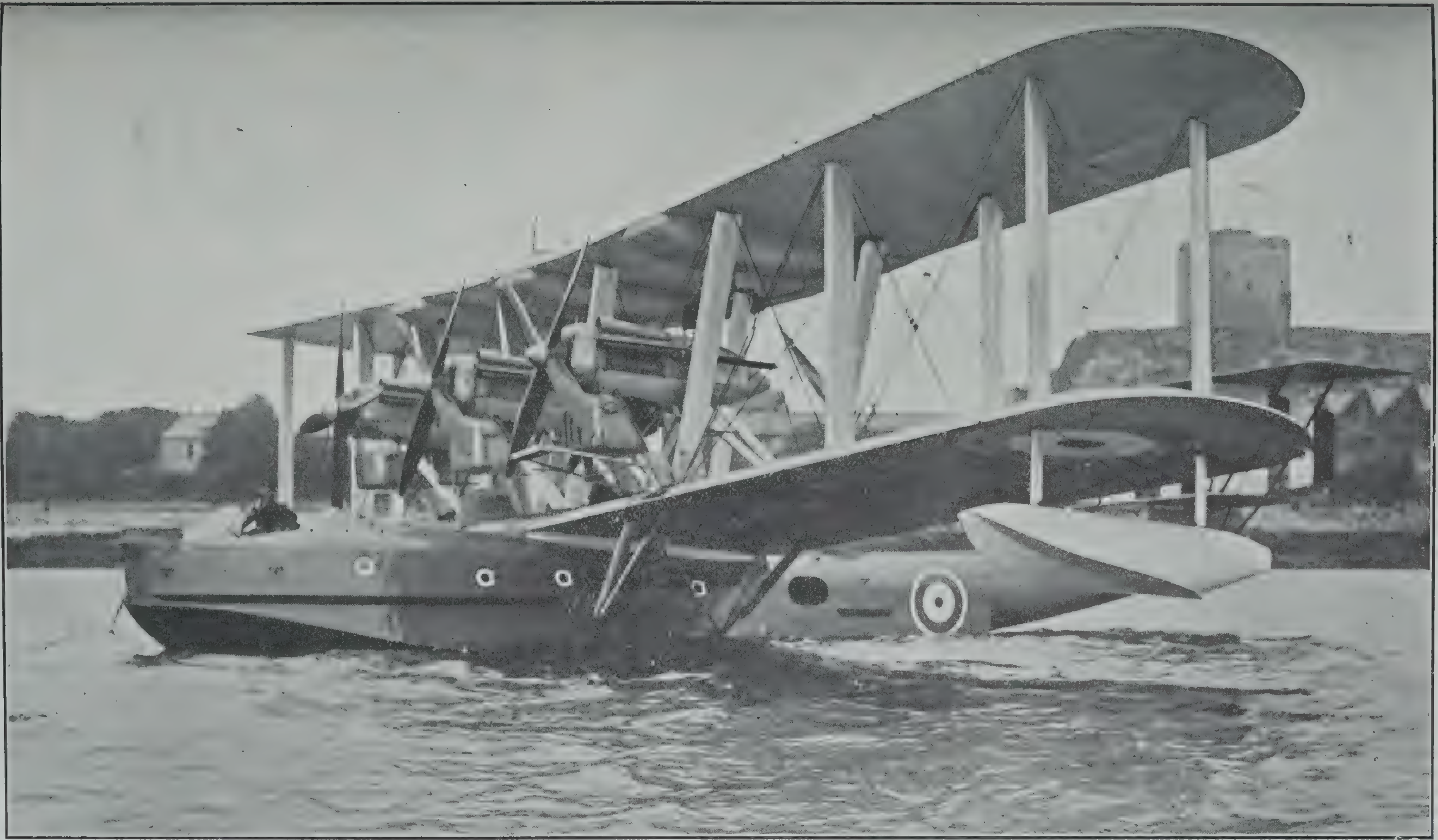
In August 1927 he was placed on the half-pay list.

Group Captain W. R. Freeman.

Group Captain W. R. Freeman, D.S.O., M.C., whose appointment to command the R.A.F. Training Base, Leuchars, is dated Oct. 27, 1928, was born in 1888 at St. John, Paddington, and was educated at Rugby and the R.M.C., Sandhurst. He entered The Manchester Regiment as a 2nd Lieut. in 1908 and was promoted Lieut. in 1912. He learned to fly in France on a Maurice Farman biplane and his certificate issued by the *Aero Club de France*, is dated July 21, 1913. On July 28, 1913, he was seconded to the R.F.C. for a course at the Central Flying School and in April, 1914, he was appointed Flying Officer, R.F.C., and to remain seconded.

On Aug. 13, 1914, he flew to France with No. 2 Squadron, R.F.C. The following account of an early adventure of the R.F.C. in which he took part, is taken from *The War in the Air, Volume* 1 :—

> On the 12th of September Lieutenant L. Dawes and Lieutenant W. R Freeman, of No. 2 Squadron, had a notable adventure. They left in the morning to carry out an aerial reconnaissance to St. Quentin. A little south of Anizy-le-Chateau, between Soissons and Laon, their machine began to rock and vibrate in the air, as if the tail were loose. They planed down at once and landed in a small field, finishing up in a wood where they damaged their undercarriage, wings and airscrew. Large German columns were on the roads on both sides of them, within about 200 yards. Taking only a biscuit and some tubes of beef extract with them, they hid in another wood close by. Some German cavalry came up to the machine, and then went all round the first wood, but found nothing, and after an hour and a half went away. The two officers lay hid until the evening, and then started in the direction of the Aisne, some eight miles' distant. During the night they passed several German pickets, but the war was young, the spirit of exhilaration still prevailed in the German Army and the pickets were making so much noise that they passed unobserved. At 3.0 in the morning they reached the Aisne, where they lay down and slept. At 6.0 they were wakened by the firing of a gun close by, and realised that they were in front of the German position. German cavalry patrolled the road in front of them, and they were under heavy shell-fire from the British. They swam the Aisne, dried their



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Return journey via Cairo, Benghazi (Tripolitania) and Malta.

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clothes in a house close by the canal, and then walked to the British guns, which were still in action. They were given food by the Third Cavalry Brigade, and were taken back on a supply column to rejoin their squadron after an absence of more than two days. It might be supposed that their troubles were now at an end, but they had yet to face their squadron commander, Major Burke, who sternly rebuked them for violating the order that no two pilots should fly together in the same machine.

In March, 1915, Mr. Freeman was appointed Flight Commander with the temporary rank of Captain and a few days later he was awarded the Military Cross. The *London Gazette* of Mar. 27, 1915, states :—

> For gallantry, ability and very valuable work performed. He located the position of German batteries on the 15th inst. and conveyed the information by wireless messages from his aeroplane to our Artillery, and although his propellor and planes were pierced by the enemy's bullets, he remained aloft for more than five hours during the day.

He returned to England in May, 1915, and was posted to Egypt in January, 1916 as a Squadron Commander and temporary Major. In June, 1916, he returned from Egypt, and in November, 1916, he was made a companion of the Distinguished Service Order for distinguished services in the Field. In December, 1916, he returned to France as a Wing Commander. He was awarded a Brevet Majority in January, 1917. In April, 1918, he was promoted Lieutenant-Colonel, and in August, 1919, he resigned his Army Commission on appointment to a permanent commission in the R.A.F. with the rank of Wing Comander. In August, 1918, he was appointed Chevalier of the Legion of Honour (France) for distinguished service. He was three times mentioned in Despatches.

After the Armistice he joined the R.N. College, Greenwich, for the War Staff Course and in 1920 he was appointed to command No. 2 Flying Training School, Royston. On the formation of the R.A.F. Staff College at Andover in April, 1922, he was appointed to the Staff and became entitled to the symbol *p.s.a.* after his name in the Air Force List. He was promoted Group Captain in January, 1923. In April, 1925, he took over the command of the Central Flying School and in January, 1927, he was posted to the Air Ministry as Deputy Director of Operations and Intelligence.

Sir Samuel Hoare at the Guildhall.

The Secretary of State for Air, Sir Samuel Hoare, replied to the Toast of the Imperial Forces at the Guildhall Banquet on Nov. 9.

In the course of his speech, Sir Samuel Hoare said that year by year a closer understanding was growing up between the three fighting Services and thanks to the personality and ability of their three distinguished Chiefs-of-Staff, a common programme was being completed stage by stage for the defence of the British Empire.

Sir Samuel Hoare referred to Flt. Lt. Greig's attempt on the World's Speed Record, which he described as evidence of the skill and dash of Air Force pilots, the excellence of British construction and the progress that was being made in increasing the programme and at the same time diminishing the weight of engine and machine.

Describing the development of Civil Aviation, he said that he was able to make the first official announcement that the regular service between England and India would start in the early spring. He added that the co-operation of Italy had been obtained for the European section of the route and an agreement had been reached between ourselves and Persia.

Speaking of the air defence of London, he said that most satisfactory results had been obtained in the Air Exercises held last August to test the efficiency of the Units engaged in them. In particular the two London Auxiliary Squadrons had more than justified the high hopes placed in them. Altogether 25,000 hours had been flown during the Exercises both by day and night, with an almost complete lack of engine failures, no injury to a pilot, and a serviceability of machines of practically a hundred per cent.

Sir Samuel Hoare concluded by saying that, urgent though he believed the defence of London to be, he was none the less certain that the forces of peace, and not the forces of war, were gaining strength in the world. We were not making these defence preparations because we believed a war to be likely, but because a great country like ours could not live on sufferance and must insure against risks We did not want a competition of armaments in the air. In his view there should be an agreement between the great Powers of Europe on the basis of air equality, and without an agreement of that kind there were greater risks of a struggle for supremacy that would beggar the taxpayer, and might, eventually, destroy European civilisation.

The Secretary of State on the R.A.F.

In the course of an address by the Secretary of State for Air, Sir Samuel Hoare, to the Royal Scottish Geographical Society at Edinburgh on Oct. 25, the following statements of exceptional interest were made :—

The only way that the liability that the aeroplane has created by its destructive powers can be counter-balanced is to make the fullest possible use of its unique power of mobility for effecting economies in the field of Imperial defence and for developing the communications and resources of a scattered Empire. I say, then, first let us use, wherever it be possible, air power for making economies in Imperial Defence. As long as the Air Force is regarded as an appendage to the Army and the Navy it can be nothing more than a third source of expense over and above the cost of the two older services. For the last five years those of us who have been connected with the Air Force have been trying to show that there are certain fields of Imperial defence where the Air Force wing by reason of its great mobility can be economically used as a substitute for the older forms of defence rather than as a supplement to them. The conspicuous instance of this policy is the case of 'Iraq where we have created an Air Command and been able to reduce the garrison which in 1921 comprised 33 Imperial battalions costing over £20 million a year to 5 squadrons of the Royal Air Force, without a single Imperial battalion in support, costing less than £2 millions. A second instance may be found in what has recently been happening in the Aden Protectorate. There, the Imam of the Yemen had for years encroached upon the British Protectorate and had in recent times kidnapped two of our friendly Sheiks. During the spring his attitude towards us became intolerable and it was necessary to take action against him. The matter came to a head at the very moment when the command of Aden was being transferred from the Army to the Air Force and substantial reductions were being made in the expenditure upon defence. The new garrison of this great Protectorate was a single squadron of the Air Force. The squadron began its campaign, when, as I say, other units were being retrenched, carried out for many weeks difficult and intensive operations, compelled the return of the Sheiks, practically forced the Imam out of the Protectorate without a single casualty in action and at a cost to the British taxpayer of less than ten thousand pounds.

Here is manifestly a case where the Air Force has proved a source both of strength and economy to Great Britain and the Empire.

If I had time I could give you further instances from 'Iraq, where last year for many months on end we held a desert frontier of 700 miles against raiding bands; from Somaliland, where in a few weeks and at little expense we removed the constant danger of the Mullah's risings; from the North-West Frontier of India, where with practically no casualties on either side we have time after time imposed peace upon the unruly tribes. I hope, however, that I have given you enough instances to show you that where air power is properly used and where full advantage is taken of its chief characteristic, speed, the aeroplane can be made an instrument of economy instead of being a source of additional expense. If the policy that I am outlining is fully developed, I can foresee the time when air power, like sea power, will be concentrated upon two or three strategic points of the Empire and when units, instead of being uneconomically tied down to local defence will be freely moved from one threatened point to another. Such a policy pre-supposes the closest possible liaison between the Air Forces of the Empire.

In this fight with distance we have been advancing along four lines. We have been carrying out a series of pioneer Empire flights by the Royal Air Force for the purpose of creating and organising long-distance air routes. Secondly, we are attempting to prove that commercial air services can be flown safely and punctually, and can eventually become self-supporting and independent of Government subsidies. Thirdly, we have been engaged upon the protracted and difficult enterprise of designing new types of airship for long-distance and non-stop flying services. Fourthly, we have been trying to stimulate an interest in the possibility of flying and to encourage wherever we can the use of the aeroplane for civilising and not destructive purposes.

To-night I can only say a few words about each of these objectives. Let me begin with the pioneer flights of the Royal Air Force. The fact to remember about these flights is that they are not stunt flights. They are carried out by the ordinary personnel of the squadrons as a part of their regular training. The units fly in formation and to a regular programme and time table. We have now had a number of flights from one end of Africa to the other, and at the moment four all-metal flying-boats, having flown 24,000 miles across sea and land—they traversed the desert from Alexandretta to Basra—are now spending a year and a-half in the Far East to gain experience of tropical conditions and possible flying-boat routes of the future. These flights, apart from their obvious service and technical uses, have been of inestimable value in showing the flag to remote parts of the Empire.

R.A.F. SPORTS AND PASTIMES.

Rugby Football.

R.A.F. Cadet College, Cranwell, versus R.M. College, Sandhurst :—Cranwell beat Sandhurst at Cranwell on Nov. 10 by a goal and two dropped goals (13 points) to a goal and a try (8 points). The game was played in bad weather and on treacherous turf. Sandhurst were the heavier side and forced the pace in the beginning and scored an unconverted try early in the game. Cranwell, however, controlled the scrums and, following some clever work, Bader and Coote each dropped a goal. Before half time Letchworth scored a try which Charles converted.

Sandhurst pressed hard in the second half and Horne scored a try which Sinclair converted. Cranwell played a fast and clever game in the loose.

A spectator writes as follows :—

Sandhurst, who were without one of their team, lost the toss and began against the wind. There had been a frost overnight, so that despite the rain there seemed every prospect of some open work behind the scrum; and Sandhurst relying on their superior weight began to sling the ball about and soon scored through their left wing, Wilson, after some pretty passing. But as the game wore on handling became very difficult. Besides, any offensive on the part of Sandhurst was smothered by the close tackling of the Cranwell threes and the

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intelligent breaking of the Cranwell pack. The latter were faster than their opponents and clever in the loose, with the result that after being in the Sandhurst '25' for four minutes Bader was able to open the score for Cranwell with a beautiful drop kick; which was quickly followed by another from Coote. Spurred by this success, Cranwell attacked vigorously, though in vain, particularly through Coote and Bader. Apart from these and Elsmie who worked hard behind the scrum the Cranwell outsides were not effective in attack and but for efforts by Murray and McKechnie the game became a duel between the two packs as a result of which Letchworth, the Cranwell captain, scored a try which was converted.

After half time the wind and rain abated, and Sandhurst at once raided Cranwell territory and scored cleverly under the posts through their threequarter on the right (Horne).

The score now stood at its final figure and it was any one's game. The ball moved up and down the field at the feet of the forwards. At one time Sandhurst looked as if they were going to score again. At another Cranwell penned their opponents for several minutes on their goal line and but for a stout defence should have scored twice more

Against a heavier team Cranwell won by greater speed and relentless tackling. At forward Letchworth, McKechnie and Eayrs were conspicuous; Elsmie worked well behind the scrum; and Coote and Bader were always in the forefront of attack and defence.

This hard and sporting game was well refereed by Mr. A. M. Smallwood, the old international and Cambridge "blue."

Cranwell is to be heartily congratulated on defeating Sandhurst for the second time since the match was instituted in 1920. (In 1925 the fixture was cancelled owing to frost.)

The previous results of this match have been, 1920 Sandhurst beat Cranwell 36—3; 1921 Sandhurst beat Cranwell 25—6; 1922 Sandhurst beat Cranwell 9—0; 1923 Sandhurst beat Cranwell 42—0; 1924 Cranwell beat Sandhurst 25—3; 1926 Sandhurst beat Cranwell 16—4; 1927 Sandhurst beat Cranwell 47—3.

Cranwell will play Woolwich at Woolwich on Nov. 17.

Association Football.

R.A.F. versus London University:—The R.A.F. beat the London University at Uxbridge on Nov. 7 by six goals to none. The R.A.F. side was heavier, faster, and more experienced and scored four goals within half an hour of the start. London University saw more of the game in the second half but two more goals were scored against them. The R.A.F. team were:—

AC. Chaston (Uxbridge), goal; AC. Blenkinsop (Uxbridge) and L-AC. James (Upavon), backs; Sjt. Evans (Ruislip), Cpl. Baldwin (Uxbridge), and F-S. Lockhart (Flowerdown), half-backs; AC. Hutchinson (Flowerdown), Sjt. Acquaroff (Worthydown), AC. Knight (Duxford), L-AC. Warwick (Uxbridge), and AC. Ward (Wittering), forwards.

Cricket in 'Iraq.

Two Cricket Competitions are fought annually in 'Iraq, namely, the Open Cricket Cup and the R.A.F. Cup. They are strongly contested by teams from each Unit, of which No. 55 (Bombing) Squadron have proved themselves the "cock" cricketing Squadron in winning bot Cups this season, with an extremely well balanced side, and throug their wonderful keenness in the field.

Following these Finals the Service Cricket Season closes with a four afternoon match, the R.A.F. v. the Army in 'Iraq. For the secon year in succession the R.A.F. under Sq. Ldr. T. C. Thomson has wo the laurels. The game this year was keenly contested before a larg crowd of spectators who, although all of them cricketing enthusiasts are not often seen on the Cricket ground during the season. Durin the hotter weather it is almost more tiring and irksome to th spectators to follow the game through the terrible glare whils perspiring in a shade temperature of 110° than it is for the bowle or fielder who creates a breeze as he moves.

Maj. K. E. Cooper, Commanding the 3/5 Mahratta Light Infantry won the toss for the Army and elected to bat. The early batsme showed good form and with only two wickets down with 133 on th score board it looked like being a high scoring match. Capt. Teagu was still in, happily hitting sixes in his usual forcible style. Sq Ldr. Wambeek, however, was the undoing of the side for the Army were all out for 200, he having taken 7 for 61.

The R.A.F. never settled down to the wily bowling of Maj. Fink and they were all out three-quarters of an hour before the close o play on the second day for 113.

On taking the field in the Army's second innings, L-AC. Thompso and L-AC. Trotter, who bore the brunt of the bowling in the Inter-Service match of 1927, opened in their best form and took 5 of the Army wickets for 30 before stumps were drawn.

On the last day the Army fared no better and were soon all out for 63, leaving the Airmen 150 to get. Thompson and Trotter ha bowled unchanged, taking 3 for 19 and 6 for 24 respectively. Then excitement ran high for at no time was victory sure for the R.A.F. Maj. Fink, ably supported by Lt.-Col. Eadie, kept them guessin and it was not until 7 wickets had fallen that the Airmen passed th Army score.

The teams were:— Army: Brig.-Gen. J. G. Browne, Lt.-Col. Eadie, Majors K. E. Cooper (Captain), R. H. L. Fink, Capt R. J. D. Teague, Lieuts. P. V. Williams, J. A. Worth, C. A. N. Hudson, N. McLeod, Signalman MacKinlay and Gopinath Chawn.

R.A.F.: Sq. Ldr. C. E. H. Medhurst, Sq. Ldr. T. C. Thomso (Captain), Sq. Ldr. W. G. L. Wambeek, Flg. Offs. F. S. Hodder, J. G. Parkin, L-AC.s Holmshaw, Thompson, Patterson, Creedon, Mewitt, and Trotter.

The closing match of the season was between Sq. Ldr. Thomson's Team and the Casuals. The members of the Casuals are drawn from Army Officers and Civilians in 'Iraq. This is the only whole-day match of the season with a real "Cricket Lunch." The game was full of excitement to the "bitter" end. The Casuals won with 211 to their opponents 172. Their score was mainly due to the terrific driving of Robin Teague, who scored 141, including 6 sixes out of the ground.

Cricket in 'Iraq is played on matting stretched over concrete or mutti (prepared mud) wickets, and the bowling opens in a shade temperature sometimes as high as 114°. Owing to the short time available for play matches extend over 2 or 3 days and in the Cup Ties, when two innings per side are played to a finish, the time has been extended to 7 days. The high temperature and the long drawn out games call for the utmost enthusiasm from cricketers in 'Iraq to play regularly, but there is no doubt that the keenness is there and it is noticeable what a high standard Unit Cricket reaches in this country

CRICKET IN 'IRAQ.—Sq. Ldr. Thomson's Team and the Casuals: (Standing) Maj. K. E. Cooper, J. N. B. Nihill, Hedges, Sq. Ldr. P. V. Williams, G. H. Herridge, Flt. Lt. Perkins, P. Lawrie, Group Capt. Bowen. (Sitting on seat) Capt. R. J. D. Teague, Sq. Ldr. Thomson (Capt.), Sq. Ldr. W. G. L. Wambeek, Maj. R. H. L. Fink, W. L. Addyman, W. L. Kennard, Lt.-Col. J. I. Eadie, Major H. H. Wheatley (Capt.). (Sitting on ground) Flg. Off. Smith, Flg. Off. Walker, L-AC.s Mewitt, Trotter, Creedon, Sq. Ldr. C. E. H. Medhurst, L-AC. Thompson.

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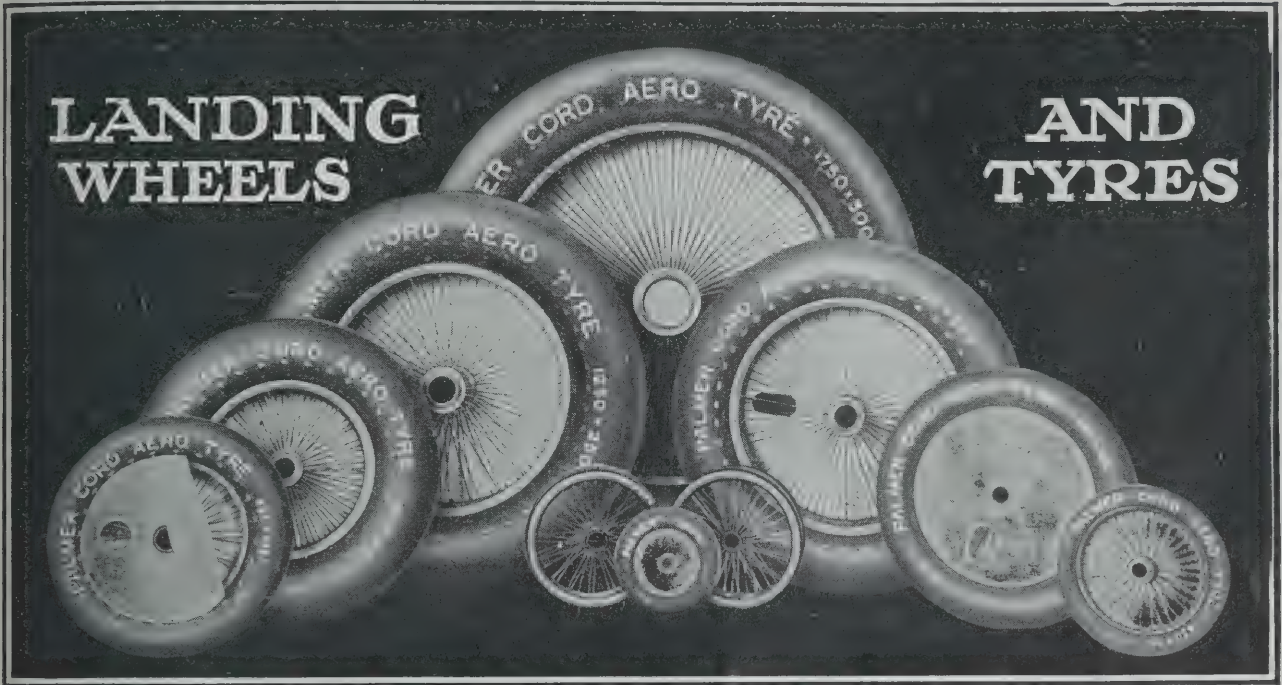

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450 × 60	30	89.	31.75	Central
"	172	130.	38.09	Central
575 × 60	21	160.	28.	Central
"	180	150.	38.09	104/46
"	186	120.	34.92	Central
"	90	150.	38.09	Central
650 × 65	78	178.	44.45	132 46
"	79	178.	44.45	Central
"	100	178.	38.09	132/46
"	101	178.	31.75	132/46
600 × 75	21	160.	28.	Central
"	180	150.	38.09	104/46
"	186	120.	34.92	Central
"	190	150.	38.09	Central
700 × 75	78	178.	44.45	132/46
"	79	178.	44.45	Central
"	100	178.	38.09	132 46
"	101	178.	31.75	132/46
700 × 100	77	178.	44.45	132/46
"	92	185.	55.	135/50
"	95	185.	55.	Central
"	99	178.	38.89	132 46
700 × 100	112	150.	38.09	Central
"	176	178.	44.45	Central
"	179	178.	55.	132/46
650 × 125	119	178.	55.	132 46
"	147	178.	55.	Central
"	188	120.	34.92	Central
750 × 125	77	178.	44.45	132/46
"	92	185.	55.	135/50
"	95	185.	55.	Central
"	99	178.	38.89	132/46
"	112	150.	38.09	Central
"	176	178.	44.45	Central
"	179	178.	55.	132/46
800 × 150	161*	185.	55.	135/50
"	162*	185.	55.	Central
"	163*	185.	66.67	135/50
"	169†	185.	55.	135/50
"	177	185.	55.	135/50
"	183	185.	55.	Central
"	211*	185.	60.32	135/50
1000 × 150	167	185.	55.	125/60
"	174	250.	80.	Central
"	182	185.	55.	Central
"	187	220.	66.67	Central
"	201	185.	60.32	125 60
1000 × 150	210	185.	60.32	Central
1000 × 180	148	220.	80.	Central
"	149	185.	55.	Central
"	155	220.	66.67	Central
"	166	185.	55.	125/60
900 × 200	107	185.	55.	Central
"	108	185.	55.	125/60
"	128	220.	66.67	Central
"	137	250.	80.	Central
"	157	185.	80.	Central
"	202	185.	60.32	Central
1100 × 220	134	220.	66.67	Central
"	136	250.	80.	Central
975 × 225	192	185.	60.32	Central
"	194	185.	55.	125/60
1250 × 250	133	250.	80.	Central
"	154	304.8	101.6	Central
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AUSTRALIA—ENGLAND.

On Oct. 30 Capt. Frank Hurley and Messrs. Moir and Owen left Richmond, N.S.W., in a Ryan monoplane (220 h.p. Wright Whirlwind engine), the *Spirit of Australia,* on the preliminary stage of an attempt to fly to England, and reached Broken Hill later the same day.

On Oct. 31 they flew from Broken Hill to Oodnadatta. On the following day they proceeded to Daly Waters, and on Nov. 2 they reached Wyndham, in the N.W. of Western Australia, the real starting-place for their flight to England.

At 03.41 hrs. on Nov. 5 they left Wyndham on the first stage of their flight and reached Surabaya, Java, at 14.30 hrs.

On Nov. 6 they flew from Sourabaya to Batavia.

On Nov. 7 they left Batavia for Victoria Point, Burma, but off the coast of Sumatra they met heavy head winds and were forced to alter their course to Singapore. On landing at Singapore they mistook a smoke signal, landed at a wrong point and ran into a golf bunker, but the machine was undamaged.

On Nov. 8 they flew from Singapore to Victoria Point and on the following day continued to Rangoon.

On Nov. 10 they flew from Rangoon to Calcutta and left on the following day for Jodhpore.

Capt. Hurley, the organiser of the flight, will make a cinematographic record and collect material for a lecture on the airway between England and Australia. He is an explorer who, like his compatriot Sir Hubert Wilkins, has almost throughout his life ventured to the lesser known parts of the world in quest of adventure. He will be remembered as the producer of a fascinating film called "Pearls and Savages," which he took in the centre of New Guinea with the aid of a decrepit Curtiss flying-boat and a Short Shrimp seaplane.

THE "GRAF ZEPPELIN."

The Times correspondent in Berlin reports that Dr. Eckener has issued a statement concerning the airworthiness of the *Graf Zeppelin* intended to correct misapprehensions which have arisen as a result of the decision not to attempt to use this ship for regular Transatlantic services.

The gist of this statement is that the design of the *Graf Zeppelin* was dictated by the limited shed accommodation available at Friedrichshafen, consequently it was not possible to build a ship of as high a speed as was at first intended, and the experience on the recent Atlantic journeys has shown that a higher speed is necessary to cope with the very heavy weather which must be faced in the North Atlantic.

The behaviour of the *Graf Zeppelin* under the extraordinary strain imposed on her off Newfoundland has convinced him that her construction is sound enough to withstand the worst strains likely to be imposed on an airship.

The ship will be used for several further Atlantic flights as soon as the problems of the new gas fuel have been solved.

Future ships however will not be limited in their proportions by shed dimensions, and will be of a fuller form than the present ship, making both for higher speed and greater strength.

[The statement that future Zeppelins will be of fuller form is particularly interesting in this country, as the designers of both R.100 and R.101 have been severely criticised in certain quarters for adopting forms considerably fuller than those hitherto used by the Zeppelin designers.—W. H. S.]

AMERICAN AIR MAIL SUBSIDIES.

Mr. Harry Guggenheim, President of the Daniel Guggenheim Fund for the Promotion of Aeronautics, writes as follows :—

'In your editorial in The Aeroplane for Sept. 19, in referring to systems of aviation subsidy, there are I think some errors which are no doubt due to misinformation that you have received about the United States Air Mail. When I read your editorial several weeks ago I determined that upon the first opportunity I should write you in regard to this question. Before pointing out specifically what I believe to be some errors in your statement, let me quote from a recent statement of my own in which I have tried to summarise the matter of subsidy and the United States Air Mail, as follows :—

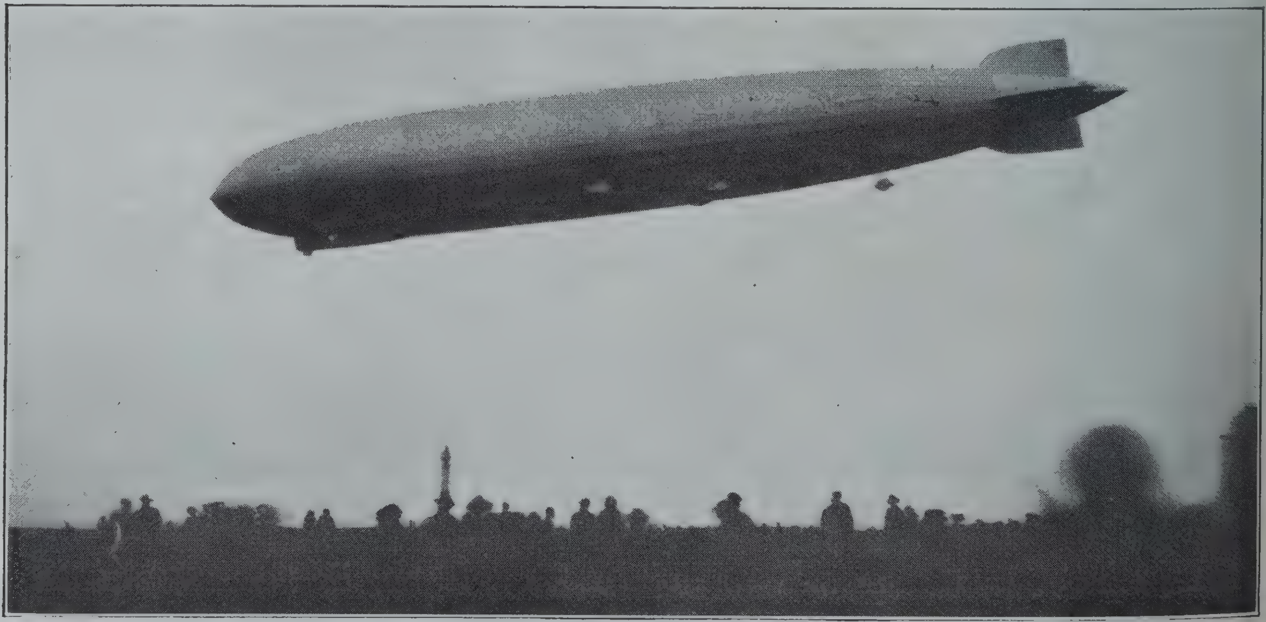
> "Most Europeans, and in fact many Americans, are under the erroneous impression that the United States' air mail is subsidising aviation. As a matter of fact, this is far from the case. Individual users of the air mail are paying for their service and are getting value received for every air mail stamp that they buy.
>
> "Congress authorised the Post Office Department to contract with the private companies to carry air mail at a rate not to exceed $3.00 per pound up to 1,000 miles. For each pound of mail which travels by air, the Government received from the sale of stamps until recently, at least $3.20.
>
> "It was intended that the difference of 20c. should go to the Post Office Department to help to defray expenses in the handling of the air mail. As a matter of fact, due to keen competition in bidding for air mail contracts, the average rate paid to air mail contractors throughout the country is less than $2 per pound per 1,000 miles. Thus the United States Government is paying far less for flying the mail than was contemplated by Congress.
>
> "Recently the air mail postal rate was cut in halves, and resulted immediately in an almost 100 per cent. increase in the use of air mail by the public. This reduction in the air mail rate has greatly increased the financial returns to air mail contractors and on account of the increased volume of business has proved no less advantageous to the Government."

'In your editorial you say,—"but as one firm carries a letter over one section of a route and another firm carries it over another section, and yet another firm carries it over another section, the Government actually pays three times over for carrying one letter which covers the whole route . . . . . ."

'This is true in some cases, but the Government only pays three times over for the percentage of mail that happens to be sent over the three routes and makes up for this loss in other ways.

'Later you say "the standard supplement for air mails is 5c. per ounce." At the present time the rate is 5c. for the first ounce and 10c. for each additional ounce. However, this new rate only went into effect last August. Before that time it was 10c. per *half* ounce, and so the Government received at least $3.20 for each pound of mail flown.

'As a matter of fact, many letters weigh less than a half ounce, and I have been informed that the Government actu-



ARRIVED.—The "Graf Zeppelin" coming down to the U.S. Navy's shed at Lakehurst,—photographed by a correspondent of "The Aeroplane" in America.

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ally receives, in some instances, as much as $4 and $5 per pound of mail carried, due to the number of letters included in a pound that weigh less than a half ounce. The real point of the whole matter is that the United States Post Office has not lost money on account of the air mail since the period of private contractors, and there is some question whether the Post Office has not actually made a profit on the air mail since that period.

'I point this out to you because I think it of real importance to aviation development throughout the World that the fundamental facts of the economics of air transport be accurately presented, so that all of us in different parts of the World keenly interested in working towards aviation progress may have correct knowledge on which to plan for the future.'

[One is greatly indebted to Mr. Harry Guggenheim for so clear an exposition of the air mail situation. This is, one believes, the first time that such a statement has been published in this country. The fact that Mr. Guggenheim should take the trouble to correct, and to explain in detail, the loose general statement published in The Aeroplane shows how thoroughly he handles the work of his father's Fund. The said Fund is generally regarded as a purely American affair, and it is, quite naturally, devoting more attention to American Aviation than to European,—but Mr. Harry Guggenheim, and those who are working with him in the Councils of the Fund, have a truly International outlook, as this letter indicates, and we shall all, in due course, have cause to be grateful to Mr. Daniel Guggenheim for his gifts to Aviation.—C. G. G.]

MR. HOPE'S AFRICAN TRIP.

Though many people have already read of the journey in *The Daily Mirror,* there are so many readers of The Aeroplane outside the British Isles, and some others, who do not read that enterprising picture paper, that there is justification even at this date for referring to the excellent work done by Mr. W. Lawrence Hope of Air Taxis Ltd. in September and October last when he flew to Kenya and back in a Gipsy-Moth. Mr. Hope will be remembered as the winner of the King's Cup in 1927 and 1928.

He left England on Sept. 11 for Kenya Colony in a Gipsy Moth to bring back pictures taken there by Mr. G. V. Grundy, *The Daily Mirror's* staff photographer, of the visit to our Central African Colonies of H.R.H. the Prince of Wales and his brother, H.R.H. the Duke of Gloucester.

Mr. Hope arrived at Cairo on Sept. 16 and, flying thence to Wadi Halfa in the middle of the day, he was smitten by sunstroke. He just retained enough consciousness to land at Halfa and after that he was in bed for fourteen days, for two of which he was unconscious.

He left Halfa on Oct. 2, and landed at Khartum the same day. He went on to Malakal on Oct. 4 and reached Kisumu on Oct. 6. At Kisumu he had to give his engine a top overhaul without help. There he was met by Mr. Grundy who delivered the pictures of the Prince of Wales which appeared in *The Daily Mirror* on Oct. 18.

According to Mr. Hope the Nuer tribes in the South of the Sudan, who, most of us understood, had been reduced to peace if not to pieces by the R.A.F. early this year, were still on the war-path, so that he would have been in considerable danger if forced to land in their territory.

On the return journey to Cairo he was flying for eleven hours a day for four days in succession, and thoroughly deserved the rest which he got by shipping his Moth from Alexandria to Brindisi instead of flying round the Mediterranean.

Having long-distance tanks in the machine he decided to fly in the day from Brindisi to London. But unfortunately when he reached the West coast of Italy he found a *mistral* blowing which resulted in his taking 13½ hours for th journey from Brindisi to Marseille, when he had reckone on about 17½ hours from Brindisi to London.

He told one after his return that when flying over son of the Riviera towns small boys on scooters were overtakin him underneath. This, though perhaps pilot's poetic licenc may not be far from exact, for the *mistral* often reaches speed of 60 or 70 m.p.h.

He left Marseilles in the dark on the morning of Oct. and about seventy miles outside Paris, flying very low i heavy mist, he hit a bird which broke his airscrew. H made a safe landing, managed to get hold of an antiqu car to take him to a village, where he got a more powerfu car to take him to Paris. There he hired a special aeroplan and reached London the same evening, in time for th photographs to appear in *The Daily Mirror* on Oct. 18.

Such in these days is newspaper enterprise. Surely ther can be no finer testimony to the confidence which the bi newspaper people have in air transport than is shown b *The Daily Mirror* in calmly sending off a solitary pilot wit a light aeroplane of 100 h.p. all the way to Central Afric to bring back photographs which, if lost on the journey could never be replaced.

Certainly no finer choice could be made for such a jo than Mr. Lawrence Hope and the Gipsy-Moth. One ca only regret that the daily papers do not handle news abo aviators with the same trustworthiness as that with whic newspaper business is handled by aviators.

BERLIN—KARACHI.

On Nov. 6 Baron Koenig arrived at Karachi on a Klem light monoplane (20 h.p. Mercédès-Benz engine), afte having flown from Berlin by way of Russia, Turkey an Persia. He intends to proceed to the Far East. His onl trouble on the Berlin—Karachi flight was a forced landin in the Persian mountains owing to head winds.

THE COWLING OF AIR-COOLED ENGINES

According to reports from New York, the United State National Advisory Committee for Aeronautics have success fully developed a type of cowling for air-cooled radial engine which though totally enclosing the engine and greatly reduces its resistance, still secures adequate cooling.

In one test the speed of a machine with a 200 h.p. engin of this type was increased from 118 m.p.h. to 137 m.p.h as a result of this cowling.

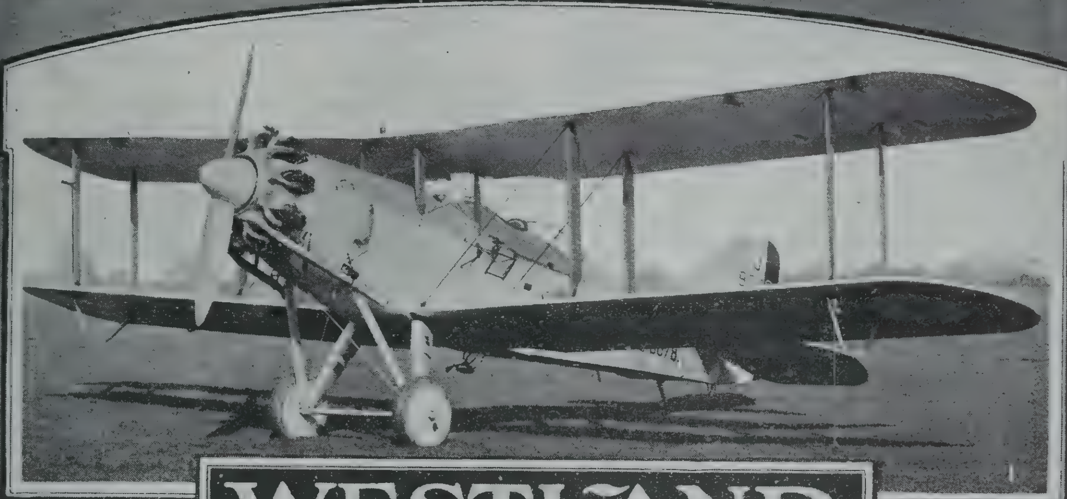
[The change in resistance required to account for thi change in speed is a reduction of about one-third of the tota resistance of the uncowled aeroplane. This is considerabl more, for the conditions specified, than the figure given i a recent N.A.C.A. report for the added drag caused by a uncowled Wright Whirlwind engine when attached to a fuselage. The fuselage in question was of large area, and th effect of the engine on a body of smaller section is probabl more serious. But the figures quoted should be received wit caution.—W. H. S.]

ADVERTISING AT THE AERO SHOW, 1929

Firms who are thinking of showing at Olympia durin the Aero Show in July next and want to catch the eye o visitors before they get into the Show may like to know something about display-advertising outside Olympia, as fo example by displaying banners across the road and posters on neighbouring hoardings and so forth.

Information on this matter can be had from Frank Mason and Co. Ltd., 3 and 4 Clements Inn, Strand. This particular affair is being handled by Mr. D. L. Forestier Walker, who will be remembered by a good many war-time aviators as an R.F.C. pilot of some note. Mr. Forestier Walker retains a lively interest in aviation and wants to do all he can for the benefit of the Aircraft Trade.

CENTRAL AFRICA AND BACK.—Mr. Lawrence Hope in the Gipsy-Moth, at Cairo.



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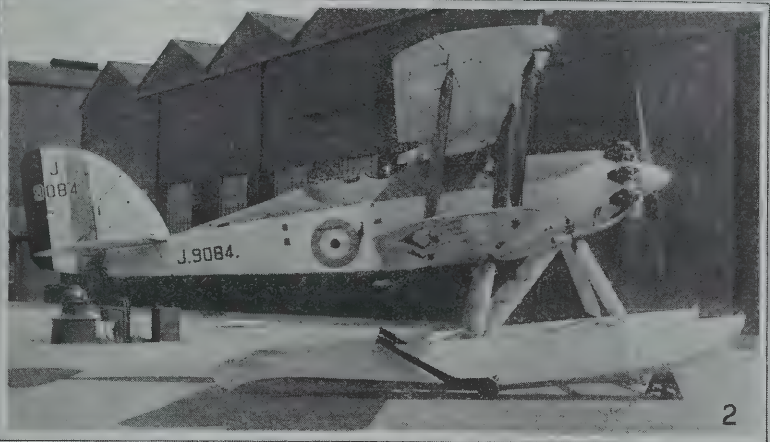

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A "general purposes" aircraft as supplied to the Royal Air Force. Landplane or seaplane; suitable for reconnaissance, bombing, wireless, photography, etc.; fitted with Handley-Page Automatic Slot Gear. Wood or all-metal construction.

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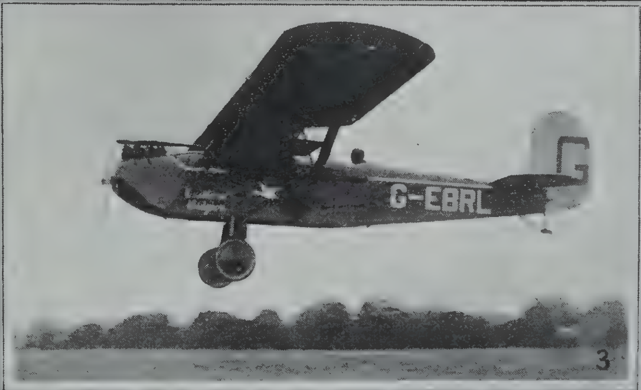

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THE FLIGHT TO PORTUGUESE EAST AFRICA.

Capt. Pais de Ramos and Lt. Oliviera Viegas, whose flight from Lisbon and arrival at Beira was recorded in The Aeroplane of Oct. 24, reached Lourenco Marques on or about Oct. 26.

The two Vickers Valparaiso biplanes (Napier Lion engines) kept company over the whole route until Oct. 19, when the machine piloted by Lt. Viegas suffered a forced landing at Chemba (Zambesia) as the result of engine trouble. Capt. Pais de Ramos carried on to Beira, which was reached on that same day, and his colleague was able to proceed the next day.

After reaching Beira the two machines paid a visit to Quilimane and returned to Beira on Oct. 25 with the intention of proceeding from Beira to Lourenco Marques on the following day.

AN AMERICAN MERGER.

The Loening Aeronautical Engineering Corpn. of New York City and the Keystone Aircraft Corpn. of Bristol, Pa., have formed a merger by an exchange of all the outstanding shares of the two companies. The firms will still operate as two independent units, and as their products have at no time been competitive the combination should be very strong.

The Loening company is one of the oldest in the United States and specialises at the moment on the Loening Amphibian, a very distinct type of aircraft that has been successfully operated in both military and commercial work. The Keystone Corpn. was formerly Huff-Daland Airplanes Inc., and has produced a long series of successful heavy bombing and light training aircraft, besides crop-dusters. They have recently entered the commercial field.

AN AMERICAN ACCIDENT.

On Nov. 3 Mr. C. B. D. Collyer and Mr. Harry Tucker were killed by crashing into the side wall of Crook Canyon, Arizona, in blinding rain and fog, when attempting to beat the East to West non-stop record across the United States in a Lockheed Vega monoplane.

The same two individuals had on Oct. 24 beaten the West-to-East non-stop record, and they were attempting to lower Mr. Arthur Goebel's East-to-West record made on the same machine, which was the property of Mr. Harry Tucker, when the accident happened.

Mr. C. B. D. Collyer first achieved international fame this summer, when he piloted a Fairchild monoplane, carrying Mr. J. H. Mears as passenger, from Paris to Tokyo and from Vancouver to New York on the land stages of a circumnavigation of the World in record time. Before this he had been one of the prominent American sky-writing pilots and well-known test pilot.

THE R.A.F. STAFF COLLEGE

The following books are among those recommended to be studied by candidates for the R.A.F. Staff College.

They may be obtained from THE AEROPLANE BOOK DEPARTMENT.

THE SCIENCE OF WAR. Henderson. 21/-
A SHORT HISTORY OF THE BRITISH COMMONWEALTH. Ramsay Muir. Vol. I and Vol. II. 30/-
THE DIRECTION OF WAR. Bird. 21/-
IMPERIAL MILITARY GEOGRAPHY. Cole. 10/-
SOME PRINCIPLES OF MARITIME STRATEGY. Corbett. 12/6
THE NATION IN ARMS. Von der Goltz. 10/6
THE INFLUENCE OF SEA POWER UPON HISTORY. Mahan. 30/-

THE AEROPLANE BOOK DEPT.,
Cannon House, Pilgrim Street, E.C.4.
(Catalogue of Modern Aeronautical Books post free on application.)

TRAVELLERS' TALES.

[*"European Skyways." By Lowell Thomas. 368 pp. 5 in. × 8½ in. Illustrated. London, William Heinemann Ltd.* The Aeroplane *Book Department. Price 15s. net.*]

This book is the result of a seven-months' trip to Europe by Mr. and Mrs. Lowell Thomas, during which the two travellers flew over 25,000 miles of organised air routes. According to the map printed on the cover and fly leaf this tou took in all the main European air-lines and extended into North Africa.

The account of the authors' own experiences of flying is padded out by a *resumé* of the history of flying—by no means uniformly accurate—and by many tales of flying exploits both in peace and war which were apparently related to them by the flying personnel with whom they came into contact. Most of these tales are of the "tall" type.

Mr. Lowell Thomas apparently is a convinced "fan" of civil flying and his book is meant to encourage its readers to acquire an enthusiasm for air travel equal to his own. Possibly there are those to whom the florid style of his writing, and the cinema type of inscription which he has tacked onto the many otherwise excellent illustrations, will appeal. But one may doubt whether these readers are likely to bring much revenue to the air-line companies.

SCIENCE.

[*The Science of Flight. Vol. II. Aeroplanes, Seaplanes and Aero-Engines. By Capt. P. H. Sumner. pp. 5½ × 8½ in. 288 pp. + index (4 pp.). 249 illustrations. Crosby, Lockwood and Son.* The Aeroplane *Book Department. Price 25s. net.*]

There is much difficulty in discovering what reasons this volume, or its predecessor, dealing with Airships and Kite Balloons, have for existence. It is not a popular introduction to the principles of heavier than air flight, and it is still less a scientific text book.

It is so badly written that one is at a loss to discover whether its many defects are the result of inadequate knowledge on the part of the author, or whether his incapacity to write clearly obscures totally what he may have to say. But in any case the value of the work is small.

DE HAVILLAND AIRCRAFT OF CANADA LTD.

On and from Nov. 1, 1928, the executive offices of De Havilland Aircraft of Canada Ltd. will be in the Bay-Richmond Building, 372, Bay Street, Toronto 2, Canada.

The firm asks that all communications of whatever nature shall be sent to the above address and not to the aerodrome.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]
Aerodrome: Stag Lane, Edgware, Middlesex.

Report for week ending Nov. 11.

Instructors: V. H. Baker and F. R. Matthews. *Ground Engineer*: C. Humphreys. *Aircraft*: 3 (NY, MP and XS).

Flying Time: 26 hr. 10 min.; *Instruction*: 25 (15 hr. 15 min.); *Soloists*: 16 (10 hr. 55 min.).

Notes.—Christmas Raffle.—It has been decided to raffle one of the Club D.H. Moths (Cirrus Mark I), complete with C. of A. Tickets, 10s. each. We shall be glad to supply any Club or R.A.F. Mess with tickets for sale amongst its members. Tickets will be issued in books of 10. The draw will take place during the second week in January, 1929, or earlier, if the tickets are sold.

Shed Accommodation.—The new shed for the Club aircraft is now nearly built and should be ready within the next fortnight.

Members' Rooms.—The Club rooms for members will be built just in front of the shed with all windows facing the aerodrome. These should be ready before Christmas.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending Nov. 11.

Instructor: G. M. S. Kemp. *Ground Engineer*: K. C. Brown. *Asst.*: G. E. J. Tait. *Aircraft*: 3 (PT, QV and LX).

Flying Time: 16 hr.; *Instruction*: 12 (9 hr. 30 min.); *"A" Pilots*: 8 (5 hr. 25 min.); *Passengers*: 5 (50 min.); *Tests*: 1 (15 min.).

Notes.—We were pleased to have QV on service again after a complete overhaul, but during the last week the weather has again let us down, especially this week-end, when it was only possible to do six hours' flying in three days.

Our new Instructor, who comes from the South, has had quite a lot to say about our North-country weather, but we are hoping for an improvement to enable some of our members to go for their "A" tests.

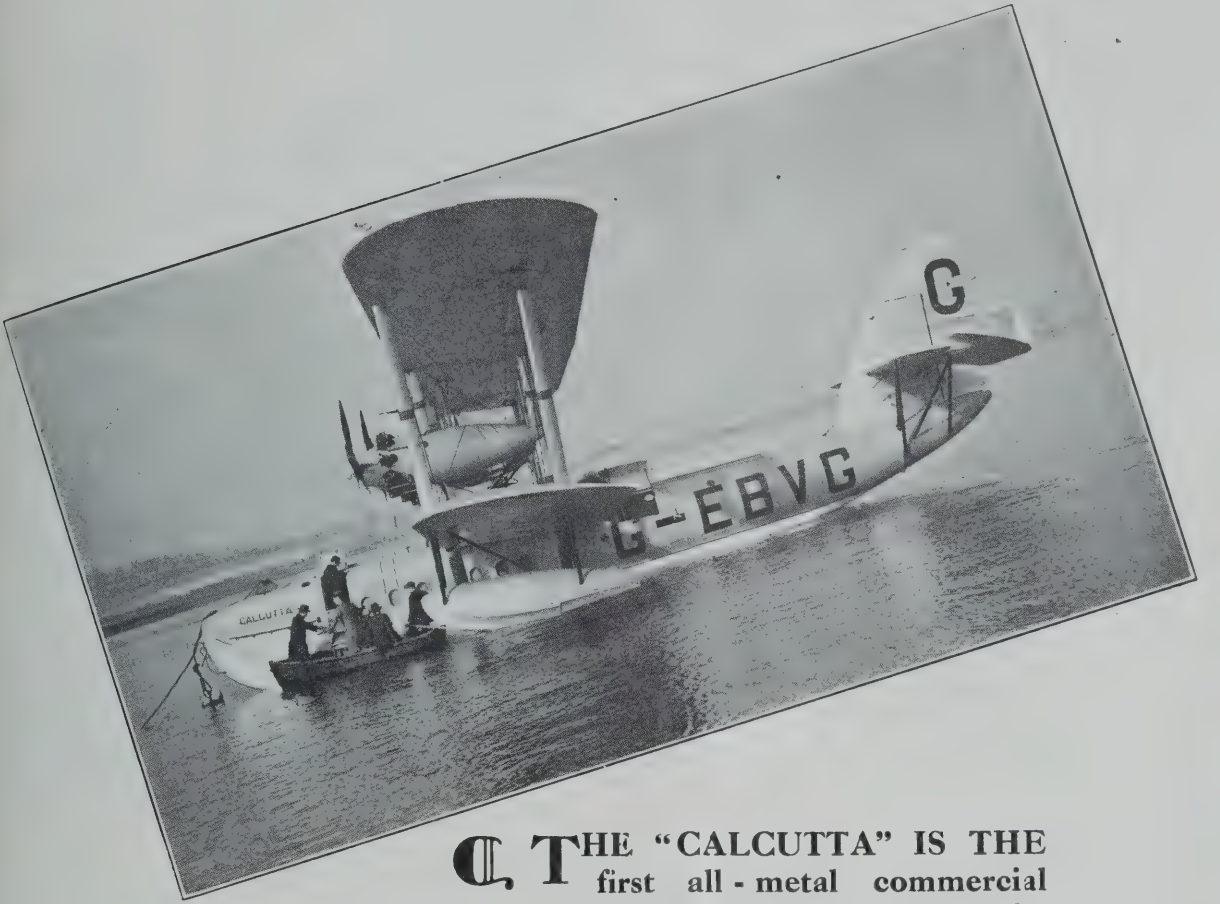
The Club is holding its fifth Annual Dance in Newcastle on Friday, Nov. 16, and offers a welcome to any Flying Club members who happen to be in this district on this occasion.

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. J. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Nov. 10.

Instructor: G. R. Beck. *Ground Engineer*: R Morris. *Aircraft*: 3 (RF, SV, TB).



¶ THE "CALCUTTA" IS THE first all-metal commercial flying-boat to be operated by the British air lines. It accommodates 15 passengers besides a crew of three, with all necessary equipment and stores.

¶ This machine has demonstrated its ability to take off from the water fully laden on two engines only—time 42 seconds; headwind 10 miles per hour.

A repeat order for a third "Calcutta" has been received from Imperial Airways, Ltd.

....

Bristol "Jupiter" Engines.

SHORT CALCUTTA

ALL METAL FLYING BOAT

HORT BROS. (ROCHESTER & BEDFORD) LTD. ROCHESTER

Flying Time: 7 hr. 5 min.; *Instruction*: 3 (40 min.); *"A" Pilots*: 5 (4 hr. 55 min.); *Passengers*: 5 (55 min.); *Tests*: 5 (35 min.).

Notes.—We regret to announce that Mr. T. Houghton, our Assistant Ground Engineer for the past eighteen months, has had to leave the Club owing to the reduction of Staff for the Winter. He has got a job with the Blackburn Co. at Brough, and we all wish him every success.

We congratulate Mr. Ivo Thomson on getting his "B" Licence. Mr. Thomson is the first *ab initio* "B" Licence pilot of the Club, and since he joined in May, 1927, has put in 170 hours.

We have had two visits this week from Capt. T. A. Gladstone, who called, in his Bluebird, on his way to London.

One of our members, Mr. Geoffrey Clapham, is bound for Bolivia to fly for the Bolivian Government. We all wish him the best of luck.

The Norfolk and Norwich Aero Club.

[Sec.: G. McEwen, Mousehold Aerodrome, Sprowston, Norwich.]

Report for week ending Nov. 10.

Instructor: B. Young. *Ground Engineer*: A. Kirkby. *Aircraft*: 2 (QX, ZW).

Flying Time: 3 hr. 10 min.; *"A" Pilots*: 4 (1 hr. 15 min.); *Soloists*: 2 (1 hr. 30 min.); *Instruction*: 1 (15 min.); *Passengers*: 1 (10 min.).

Notes.—For two days this week Norwich was enshrouded in fog and flying impossible.

On Friday the Annual Ball was held in the Arlington Rooms and they were packed with 300 people. Over 200 applications for tickets were reluctantly turned down owing to restricted space, and all the available tickets were sold a week before the time. The Aero Club Ball is the most up-to-date and popular show of the City.

Mr. Young collected XE from Manchester this week and now we have once more a full establishment of three machines.

The Club was closed on Sunday, Armistice Day.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadleigh, Suffolk.]

Aerodrome: 2 miles E. from Hadleigh, Suffolk.

Report for week ending Nov. 10.

Instructor: G. E. Lowdell, A.F.M. *Ground Engineers*: "C," E. Mayhew, and "A," G. Keeley. *Aircraft*: 2 (RE and UH).

Flying Time: 14 hr. 55 min.; *Instruction*: 9 (9 hr. 40 min.); *Soloists (under instruction)*: 3 (2 hr. 5 min.); *"B" Pilot*: 1 (35 min.); *"A" Pilots*: 3 (45 min.); *Passengers*: 12 (1 hr.); *Tests*: 1 (50 min.).

Notes.—Mrs. Young made a successful first solo during the week. Mr. H. Billinton and Mr. Lowdell flew to Brooklands on Friday in UH to represent the Club at the At Home of the Household Brigade Flying Club. The Secretary of the latter Club is one of our members and may be remembered as the entrant of one of our Bluebirds in the Race for the King's Cup this year.

We offer our sympathy to the Household Brigade Club on the death of Mr. Madocks.

There is little to report this week except rain and fog.

We had a visit from Mr. Overbury, a member of the Hampshire Club, who has just returned from Canada, where he has been doing forest fire patrols on a Moth seaplane. He joined the Club as a temporary member and performed on the Bluebird. Fortunately our member was away that day as we are sure he would have been much annoyed to see his machines being used by someone else.

The Bristol and Wessex Aeroplane Club.

[Sec.: Major G. S. Cooper, D.S.O., Filton Aerodrome, Bristol.]

Report for week ending Nov. 10.

Instructor: E. B. W. Bartlett. *Ground Engineer*: A. W. Webb. *Aircraft*: 2 (YH and TV).

Flying Time: 8 hr. 5 min.; *Instruction*: 6 (4 hr. 35 min.); *Soloist (under instruction)*: 1 (5 min.); *"A" Pilots*: 4 (1 hr. 55 min.); *Passengers*: 3 (45 min.); *Tests*: 6 (45 min.).

Notes.—There is very little of interest to report. Members have taken full advantage of the few bright intervals. We record Mr. Rogers' first solo, which he did well. He shows promise of an early "A" Licence. Miss Massingham and Mr. Pratten did their first flights. The Hon. C. Dutton, with Mr. Bartlett, did a 2-hour flight to Sherborne and back.

Liverpool and District Aero Club.

[Sec.: J. Ellis, Hooton Park Aerodrome, Wirral.]

Report for week ending Nov. 10.

Instructor: Flt. Lt. J. B. Allen. *Ground Engineer*: H. Pixton *Aircraft*: 3 (XX, XY, WK).

Flying Time: 10 hr. 35 min.; *Instruction*: 13 (8 hr. 15 min.); *Soloists*: 4 (35 min.); *"A" Pilots*: 2 (40 min.); *Passenger*: 1 (15 min.); *Tests*: 10 (50 min.).

Notes.—Bad weather this week—but Capt. Marstrand found a fine interval on Thursday, and put up a very creditable first solo. When Mr. Greenhalgh was flying XX the rocker-arm bracket-seating fractured and parted company with the cylinder-head. Mr. Greenhalgh made a clever forced landing on the aerodrome. On Wednesday, Mr. Thornton "did an arrival" and Mr. Pixton had the machine flying next day.

A blue-tit which has been living rent free in our hangar has taken a sudden dislike to XX and pecks holes in the wings industriously, the big bully One realises that this sounds a bit tall, but there it is, and teetotal members have also seen the bird at work. [Better look at the internal wood-work. It may have become infected with worms of some kind, which the intelligent bird is trying to extract for the good of the Club's pilots. But why hasn't the bird become doped? Perhaps, on second thoughts, that is what it is after. The true explanation probably is that birds of this kind find their food by tapping trees till they find a hollow spot, which is obviously worm-eaten. Having bumped into the plane by accident and heard it drum, the poor mutt thinks that he has struck a whole hollow tree, and under cover.—C. G. G.]

The Nottingham Aero Club.

[Sec.: Cecil R. Sands, A.C.A., Imperial Buildings, Victoria Street, Nottingham.]

Report for week ending Nov. 2.

Instructor: Bernard Martin. *Engineer*: A. J. Harris. *Machines*: 2.

Flying Time: 14 hr. 15 min.; *Instruction*: 4 hr.; *"A" Pilots*: 7 hr. 35 min.; *Soloists (under instruction)*: 50 min.; *Passengers*: 45 min.; *Tests*: 1 hr. 3 min. *Instruction (with Mr. Martin)*: Messrs. Thorpe, Kay, Hutchinson, Cudlip, Granger, Dr. Lyons. *Solo "A" licence*: Messrs. Bradley, Selvey, Whitby, Pilgrim, Taylor, Ball. *Soloists (under instruction)*: Messrs. Hall, Winn.

Notes.—A party we have missed during this week are our friends the "sky-writers" who have had to give up owing to the bad weather. A blue broke in the sky and they flew like birds to Hendon.

We would like to announce that there is a distinct increase to our membership in spite of the very bad weather.

Mr. C. Ball, one of our original members, flew to Cambridge and back on Friday, Nov. 2.

The Scottish Flying Club.

[Sec.: George Baldwin, 101, St. Vincent Street, Glasgow.]

Aerodrome: Renfrew.

News of the Scottish Flying Club has been scarce during the past Summer. The reason is that the Club has been very busy about its own affairs and has had neither the time nor the inclination to compete in the various inter-Club events. Nevertheless it has been doing very good work.

It claims to have the best staff of any of the Clubs, and the claim is supported by the cold fact that out of 360 members the Club has acquired 36 "A" licences and 6 "B" licences. Its flying stock consists of 2 X-Moths (Mark II Cirrus), 1 Avian (Mark II Cirrus) and one spare Mark II Cirrus. It has £2,500 invested in plant, Club Room, etc., and a goodly balance of cash in the bank. On top of which, it owes no man anything.

Though the Club does not take an active part in the Associated Club scheme, as it does not believe in pooling its cash resources, nor in making money out of displays only to share that money with other less efficient Clubs, it is all in favour of co-operative effort in technical and other matters. One hopes to see the Scottish Club more prominent in what one must call International Events (in view of the Scottish Club's Home Rule policy) in future.—C. G. G.

The Household Brigade Flying Club.

The first entertainment given by the Household Brigade Flying Club was unhappily overcast by the death of Mr. G. H. B. Madocks of the 2nd Battalion, Coldstream Guards, who was one of the most active organisers of the Club.

Just before the flying was to begin officially Mr. Madocks was in the air in his own S.E.5a, with a 90 h.p. Raf engine. In doing a climbing turn he fell into a spin and after about three turns hit the ground at such an angle that the machine was completely wrecked though it did not actually turn over. He was so badly injured that he died before an ambulance could reach him.

His death was truly a tragedy in that his father and mother came to see him fly, and arrived at the aerodrome shortly after he was killed. They lost another son, Mr. Kenneth Madocks, last April in that motor accident in France in which Lord Trematon was killed. Mr. Madocks was the son of Brigadier-General W. R. N. Madocks, C.B., C.M.G., D.S.O., R.F.A., of Glanywern Hall, Denbigh.

The cause of the accident was simply that a pilot on a machine which was known to be tail-heavy was trying to do more with it than his lack of experience enabled him to do.

After his death there was some discussion as to whether the meeting should be cancelled or not. The question was difficult to decide. We are long past those days in which if an aviator was killed other aviators on the ground believed that their duty was to fly at once so as to demonstrate their faith in aviation. And, as the meeting was a purely private affair of the Club's, the reason that flying must continue so as not to disappoint the public was also lacking. So there was rather a feeling that flying should be stopped purely as a mark of respect. But those responsible for the meeting decided, wisely, one believes, that flying should continue,—equally as a mark of respect.

There were no competitions but quite an amount of very pretty exhibition flying was done. The remarkable thing about the meeting was the number of visiting aeroplanes. Altogether one noted twenty-six on the ground at once.

These were as follows:—*Moths*:—EBUR, McClure; EBTI, Burt; EBXT, Rose (Midland Club); EBXS, Matthew (London Club); AAAV, Cooper; AAAL, Miss Spooner; EBZF, England; EBYJ; EBWT, Muntz; EBQH, Butler; EBZI; EBUW, Irvin; EBVD, Yeatman; EBYK, Malcolm; EBSA: EBWY, Norman; AABH; and EBRT. *Avians*:—EBYR Percival; and EBZD, Gordon Sprigg (*Airways*). *Bluebird*:—EBUH, Lowdell (Suffolk Club). *Spartan*:—EBYU, Banting. *D.H.53s*:—EBXN, de Burgh; and EDXM. *Avro*:—EBJE, Miles (Shoreham).

There were also three Armstrong-Whitworth Atlases and a Lynx-Avro belonging to the R.A.F., besides all the Avros of the Henderson Flying School and Mr. Dudley Watt's modified S.E.5a, EBOG, known as D.W.1, with a Hispano-Suiza engine.

But for the lamentable accident at the start the meeting would have been thoroughly enjoyable.—C. G. G.

The Auckland Aero Club.

To commemorate the first crossing of the Tasman Sea by air by Capt. Kingsford Smith and Mr. Ulm, and to foster the interest in aviation which the flight has created in New Zealand, the Proprietors of the *New Zealand Herald* and *Auckland Weekly News* have presented the newly-formed Auckland Aero Club with its first machine, a slotted Gipsy-Moth. Delivery of the machine is being expedited by Mr. F. D. Mill, the De Havilland agent in New Zealand.

The Saskatoon Aero Club.

[Sec: Bert Masecar, Room 2, Royal Bank Building, Saskatoon.]

Report for week ending Oct. 7.

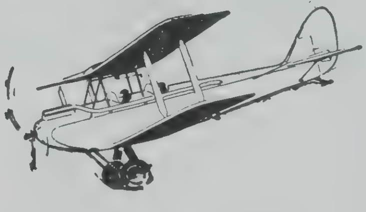
Instructors: Bythell and Mayson.

Flying Time: 31 hr. 20 min.; *Instruction*: 18 hr. 10 min.; *Soloists*: 10 hr. 55 min.; *Observer Member Flights*: 6.

Notes.—There were no new soloists this week, but lots of time was put in by those who did solo work.

The big event of the week was a visit by one of the Inspectors of Civil Aviation, Mr. Abbott, from Ottawa. He inspected the aerodrome and declared it could be made to be one of the finest in Canada from a flying point of view. The aerodrome is a full quarter section, very

—and, as we have said before, ALL
THE WORLD FLIES A
MOTH



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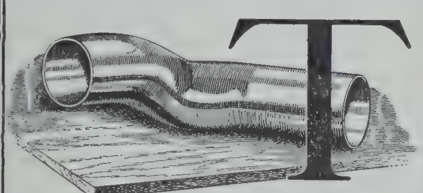

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level, with no obstructions from any direction leading to the aerodrome, and the country round about is very level.

Mr. Abbott's visit was primarily to examine pupils who are ready to be tested for a licence. Bob Randall and Bob Sigsworth were examined and successfully passed some of the tests leading up to a "Private Pilot's Licence." Further tests will be necessary before they can consider themselves fully qualified.

Mr. S. McClelland continued his good work by taking up passengers

Report for week ending Oct. 14.

Flying Time: 16 hr. 40 min.; *Instruction*: 10 hr. 5 min.; *Soloists*: 2 hr. 45 min.; *Observer Member Flights*: 9.

Notes.—Wednesday's snow-storm held things up badly. During the first two days of the week the Club got in 10 hours' flying. Since Wednesday landing and taking-off has been somewhat of a hazardous affair. When frozen the ground was good, but as soon as it began to thaw it reminded one of nothing so much as Bunyan's "Slough of Despond." Altogether a dismal week. However, our genial chief instructor was able to get away on his first solo another budding aviator, Mr. Yule.

Report for week ending Oct. 21.

Instructors: Blythell and Mayson.

Flying Time: 34 hr. 10 min. *Instruction*: 21 hr. 50 min. *Soloists*: 6 hr. 10 min.; *Observer Member Flights*: 8.

Notes.—A fairly good week on the whole. High winds during the day somewhat cut the hours down, afternoon instruction being hampered nearly every day. Major C. R. McCullough went solo last Tuesday, doing "Very nicely, thank you." We would like to see more of the officers of the Militia following his example, and we are sure the ability to fly would help them in understanding better the mysteries of promotion exams, and staff rides. In them, as in everything to-day, it is the "Air" that counts. Mr. McClelland continued his good work of taking up observer members.

Last Sunday K.O., our second Moth, took it upon itself to snap a connecting rod, and push a large hole in both halves of the crank case. This happened at the height of 2,100 and Dick Mayson achieved a perfect forced landing.

Flying times will suffer accordingly, and coming at this period when pupils are daily going solo, and those already solo are practising for tests, it hits us very hard.

The Singapore Flying Club.

[Sec.: H. S. Chapman.]

Report for week ending Sept. 22.

Instructor: Flt. Lt. S. H. Gaskell. *Seaplanes*: 2.

Flying Time: 17 hr. 12 min.; *Instruction*: 11 hr. 48 min.; *Soloists*: 45 min.; *Passengers*: 4 hr. 21 min.; *Tests*: 18 min.

Notes.—Although the Club was officially opened on April 28, and a certain amount of flying was put in between that date and May 10, owing to the kindness of Sq. Ldr. G. E. Livock, D.F.C., Flt. Lt. D. V. Carnegie, A.F.C., and Flt. Lt. Nicholetts, of the Far East Flight, it was not until Sept. 13 that regular flying began.

Flt. Lt. S. H. Gaskell, Chief Instructor to the Club, arrived from England on Sept. 10, and the report covers the period Sept. 13 to 22.

The Club membership is now 116.

Successful solo flights to date have been made by R. Johnstone, P. W. F. Mills and W. I. L. Legg—all old war-time pilots.

On Sept. 15 the Far East Flight arrived back from Australia, and the Chief Instructor and Club Captain (Capt. H. S. Chapman) flew to the Air Base at Seletar to welcome them.

Flying times on week-days are from 06.00 hrfl to 08.00 hr., 16.30 hr. to 18.00 hr., and during week-ends almost continuously from 14.30 hr. on Saturday to Sunday evening.

Weather has been good but with occasional Sumatras.

Report for week ending Sept. 29.

Flying Time: 24 hr. 53 min.; *Soloists*: 6 hr. 25 min.; *Dual*: 17 hr. 42 min.; *Passengers*: 1 hr. 45 min.; *Tests*: 11 min.

Notes.—On Sept. 26, Mr. W. H. Blagden, who already holds an "A" Licence on land planes, obtained with the Lancashire Aero Club, successfully accomplished his first seaplane solo. During the week under review, W. I. L. Legg passed his figures of eight and altitude tests for "A" Licence.

The weather on the whole was favourable, though we were on several occasions handicapped by mist in the early mornings making dual instruction somewhat difficult.

Valuable help has been rendered by Flt. Lt. D. V. Carnegie and Flg. Off. C. E. Nicholetts, who have been giving dual instruction to several members.

G-EBUJ sank at its moorings on the night of Oct. 3-4 but was salved with no damage other than sea water. It is being completely dismantled and overhauled and should be ready for flight in the course of the next ten days. [Something ought to be done about mooring-out light aeroplanes. Only the other day a friend in Rio de Janeiro wrote that a Moth belonging to the Aircraft Operating Co. Ltd. had turned a somersault at its moorings in the early hours of the morning.—C. G. G.]

FLYING SCHOOLS.

The De Havilland Flying School.

Report for week ending Nov. 11.

Flying Time: 71 hr. 55 min.; *Instruction, Dual*: 13 hr. 50 min.; *Solo*: 21 hr. 35 min.; *Other flying*: 36 hr. 30 min.

Notes.—Amongst new pupils we welcome Mr. J. Scott-Taggart, the well-known wireless authority and Mr. G. E. T. Eyston, the famous racing motorist. Our congratulations are extended to Mr. P. M. Kabali, who despite many difficulties put up a fine show on his first solo flight.

Stag Lane Aerodrome is becoming more cosmopolitan than ever. On Friday, Danish, Belgian and Spanish Gipsy-Moths left in formation to clear the Customs at Lympne. And machines belonging to the American, Czecho-Slovakian and Chilean pilots are housed in the "Stag Lane Aircraft Garage."

Fifteen new Gipsy-Moths were tested and despatched during the week.

The Henderson Flying School.

[Sec.: H. S. Hamilton, Brooklands Aerodrome, Byfleet.]

Report for week ending Oct. 25.

Instructors: Lieut.-Col. G. L. P. Henderson and H. D. Davis.

Ground Engineers: A. A. Anderson, W. A. Watts and W. Baker. *Aircraft*: 3 (G-AACA, VE and WJ).

Flying Time: 18 hr. 45 min.; *Instruction* 29 (10 hr. 5 min.); *Soloists*: 11 (7 hr. 40 min.); *"A" Pilots*: 3 (1 hr. 45 min.); *Tests* (1 hr.).

Notes.—Mr. Glenny made his first solo successfully.

Report for week ending Nov. 1.

Instructors: Lt.-Col. Henderson and H. D. Davis. *Ground Engineers*: A. A. Anderson, W. Watts and W. Baker. *Aircraft*: 2 (CA and VE).

Flying Time: 10 hr. 50 min.; *Instruction*: 19 (5 hr. 20 min.); *Soloists*: 11 (5 hr. 30 min.); *"A" Pilots*: 3 (1 hr. 45 min.); *Engine Tests*: 30 min.

Notes.—Messrs. Glenny and Guinness have now completed all their tests for their "A" Licences.

The occasion of Mr. S. S. Daniel's night flying was marked by an exceptionally good performance by Mr. A. A. Anderson, who flew the machine from Brooklands Aerodrome to Croydon in the dark to help Mr. Daniel do his tests for his "B" Licence These were satisfactorily completed and the Henderson Flying School has now turned out six "B" Licence pilots this year.

The Brooklands School of Flying, Ltd.

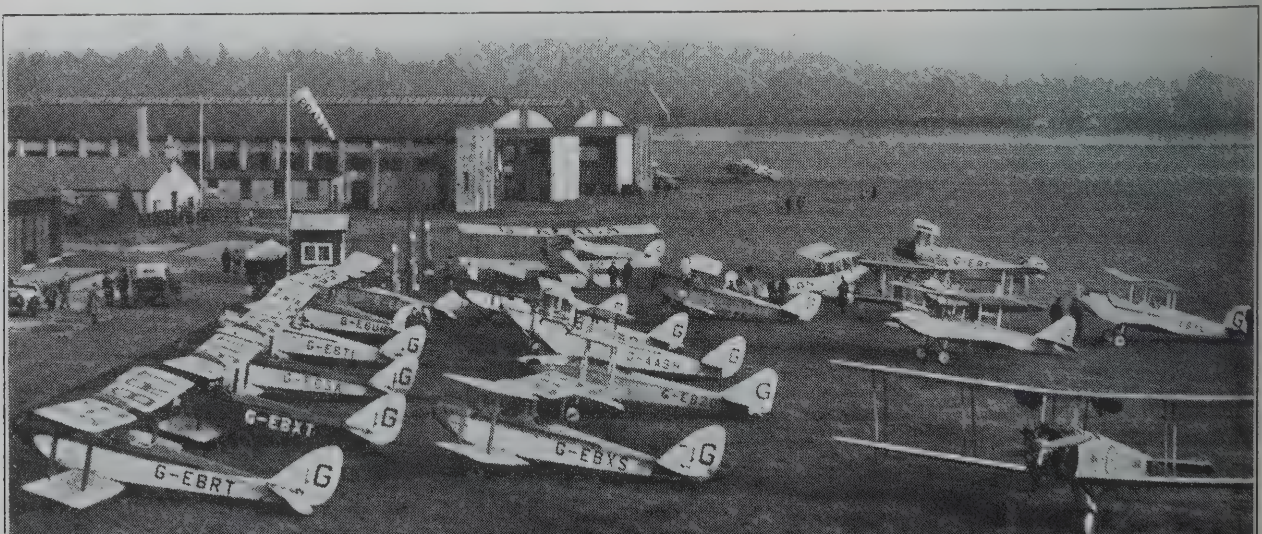
[Sec.: H. S. Hamilton, Brooklands School of Flying Ltd., Brooklands Aerodrome, Byfleet.]

Report for week ending Nov. 11.

Instructors: Capt. H. D. Davis, A.F.C., Major Pickthorn. *Ground Engineers*: W. A. Watts, W. B. Baker, W. H. Hellon. *Machines in Commission*: G-EBVE, G-EBWJ.

Flying Time: 4 hr. 20 min.; *Instruction*: 7; *Soloists*: 2; *"A" Pilots*: 2.

This is the first week since the change-over from the Henderson Flying School and flying was stopped from last Monday to Friday to get the machines reconditioned and painted with new colours. The machines were wheeled out of their sheds on Friday for the first time during the week—hence the small number of hours flown.



BROOKLANDS REDIVIVUS.—The scene from the Byfleet Bridge at the inaugural meeting of the Household Brigade Flying Club.—(*"Aeroplane" photograph.*)

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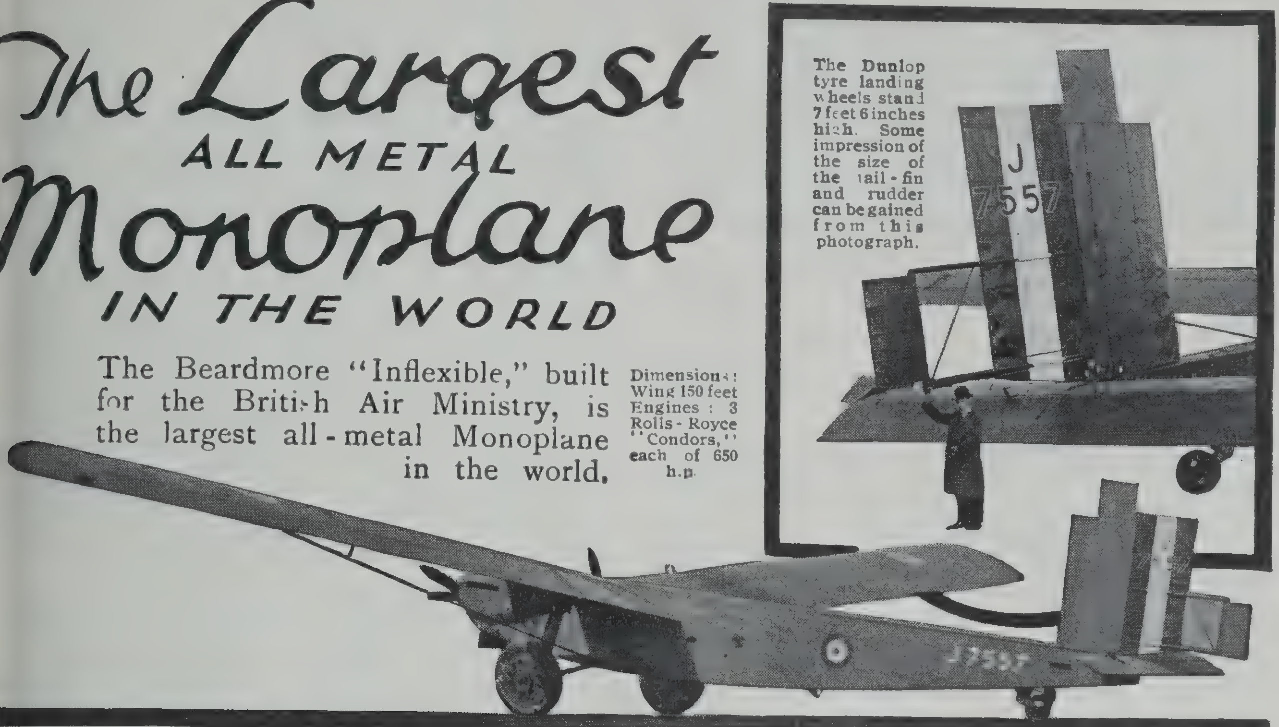

The Dunlop tyre landing wheels stand 7 feet 6 inches high. Some impression of the size of the tail-fin and rudder can be gained from this photograph.

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"MORNING POST,"
8th May, 1928.

COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK

Trips per Day.—Sunday, 12; Monday, 17; Tuesday, 9; Wednesday, 18; Thursday, 17; Friday, 18; Saturday, 16.

IMPERIAL AIRWAYS LTD. :
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 42, passengers 301, freight 17 tons.

AIR UNION :
Paris—London and return: Machines 24, passengers 67, freight 12 tons.

K.L.M. :
Amsterdam—Rotterdam—London and return: Machines 13, passengers 52, freight 5 tons.

SABENA :
Brussels—London and return: Machines 8, passengers 16, freight 2 tons.

DEUTSCHE LUFTHANSA A.G. :
Amsterdam—London and return: Machines 10, passengers 27, freight 2 tons.

MISCELLANEOUS :
British machines 9, passengers 1.
Foreign machines 1, passengers 3.
Total number of trips by British Machines, 51, carrying 302 passengers. Foreign Machines, 56, carrying 165 passengers.

COMPARATIVE FIGURES.

Week ending Nov. 10:
Machines, 107; Passengers, 467; Crews, 206; Total personnel, 673.
Corresponding week, 1927:
Machines, 94; Passengers, 344; Crews, 167; Total personnel, 511.
Corresponding week, 1926:
Machines, 74; Passengers, 156; Crews, 86; Total personnel, 242.
Corresponding week, 1925:
Machines, 62; Passengers, 157; Crews, 75; Total personnel, 232.
Corresponding week, 1924:
Machines, 40; Passengers, 153; Crews, 52; Total personnel, 205.
Corresponding week, 1923:
Machines, 80; Passengers, 157; Crews, 129; Total personnel, 286.
Corresponding week, 1922:
Machines, 22; Passengers, 55; Crews, 48; Total personnel, 103.
Corresponding week, 1921:
Machines, 63; Passengers, 121; Crews, 92; Total personnel, 213.
Corresponding week, 1920:
Machines, 51; Passengers, 86; Crews, 64; Total personnel, 150.

Croydon Notes.

The fog of last Tuesday completely disorganised Croydon traffic. None of the outgoing machines was able to leave before 11.00 hrs., and no incoming machine succeeded in getting to Croydon. Two Imperial Airways machines—one from Paris and one from Cologne, and one Luft Hansa machine, landed at Penshurst. Thence they departed outward bound the next morning, passengers being sent down by road to that place. One Sabena machine discharged its load of goods and mails at Lympne and returned. All the other incoming machines—five in number—reached Croydon next afternoon.

The conditions on this day apparently led to a certain amount of inter-air-line bickering as to order of precedence in taking off. When the outgoing machines were at last able to leave the weather was still so thick that there would have been danger if more than one machine had to be above the aerodrome at the same time, and the Authorities considered that at least ten minutes' interval between departures should be allowed.

But as there was no certainty how long the interval of relative clearness would last, each line was anxious to be first away and let the others do the waiting. One machine seems to have taken off whilst the argument as to precedence was in full swing, and the remainder thereafter followed as and when they were able and inclined thereto.

In accordance with a recent decision of the International Convention for Air Navigation, the first two letters of the Dutch registration marks are in future to be PH instead of HN. All K.L.M. machines are accordingly changing their markings, and the first to bear the new marking—PH-AEF—was seen at Croydon on Wednesday.

Surrey Flying Services school work—referred to some few weeks ago—is flourishing exceedingly. In the past ten weeks they have put six pupils through their "A" license tests at an average cost to each pupil which was if anything rather less than the cost of obtaining a license through a subsidized flying club. Those to whom the cost of learning fly is a serious question would do well to look into the p sibilities available at Croydon.

BRIGHTON AS AN AIR PARK.

The Brighton Herald of Nov. 10 states that Sir Willia Horwood, who recently retired from the post of Commission of the Metropolitan Police, has joined the board of directo of the firm which is organising the proposed motor-tra and aerodrome in the Downs behind Portslade. One hop that his experience as a policeman will assure proper la abiding behaviour on the part of the pilots who use t aerodrome.

The Brighton Herald further states that there is a like hood that the aerodrome will be made the headquarters a new squadron of the Auxiliary Air Force, and that Bright has been mentioned as a likely place for the raising of squadron of volunteer airmen.

As a cheery spot for Saturday night amusements duri week-end training, Brighton may have something to reco mend it, but one cannot see the indigenes of Brighton formi the personnel of a squadron themselves. Despite the fa that about the first public seaplane flying in England w done from Mr. Herman Volk's home-made shed on Bright beach, Brighton has probably shown less interest in aviati than any town of its size in the British Isles.

ROHRBACH TEST FLIGHTS.

Preliminary test flights of the Rohrbach "Romar" flyin boat were made at Travemünde in September. After the first flights the machine was fully equipped, and at the sa time certain modifications to the control system were ma —the most important being an increase of the size of t vertical fin.

A further series of test flights were then made by t Rohrbach firm starting on Oct. 3 and continuing up Oct. 16, before handing the machine over for official acce ance tests. These flights show that the machine is easi handled, and can be held straight with one wing engine o of action, or even turned against the running engine in th condition.

At a loaded weight of 13,500 kg. (29,700 lbs.) the machi took off in 19 seconds, and with a weight of 15,300 k (33,660 lbs.) in 29 seconds with a wind of 3 metres/se (6½ m.p.h.). These tests were continued up to a total lo of 18,500 kg. (40,700 lbs.). At this load the take off is sa to be so good that the Rohrbach firm are confident that 20,000 kg. (44,000 lbs.) the machine would be able to lea the water. Loaded to 12,600 kg. (27,720 lbs.) the Romar to off on two engines in a 2—3 metre/sec. wind.

Accurate performance figures for the machine will not available till the official acceptance trials are completed. T machine has reached 1,000 m. (3,280 ft.) in 5 mins., load to 15,000 kg. (33,000 lbs.) and has reached a speed of 1 km.h. (118 m.p.h.), but considerably better results are e pected.

Consumption trials show that at an air speed of 171 km. (106 m.p.h.) the machine consumes 284 kg. of fuel p hour, which gives her a range with full load of 4,000 k (2,480 miles).

Prelimnary tests on the Rohrbach "Rostra"—a small flying-boat of similar general design fitted with two Jupit engines, were made at Travemünde on Oct. 30 and Nov. These showed the machine to have excellent stability a control.

Loaded to 6,800 kg. (14,960 lbs.) the machine showed a t speed of 205 km.h. (127 m.p.h.).

MORE JUNKERS RECORDS.

Two more World's records are likely to go to the credit the Junkers firm. On Nov. 7 Herr Harder on a Junke W.34w seaplane (Bristol Jupiter engine) carrying 500 kg (1,100 lbs.) of useful load, reached a height of 7,300 metr (23,950 feet).

On Nov. 8, Herr Kneer on the same machine but with useful load of 1,000 kgs. (2,250 lbs.) reached a height 6,330 metres (20,770 feet).

The Deutscher Luftrat will put these figures before t *Fédération Aéronautique Internationale* for homologation.

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SIR ALAN COBHAM'S FILM.

n Thursday, Nov. 8, the Cinema Trade and certain privi-ed persons concerned with Aviation were invited to the oria Theatre to see a trade show of the film produced by Alan Cobham as a result of his recent survey tour round ica, which he has dedicated to its chief patron, Sir Charles kefield. Whatever may have been thought of it by the vling vulgarians who mis-direct the vast majority of our ema theatres, there is no doubt that 99 per cent. of the would be thoroughly appreciated by audiences of all sses all over the British Empire, and in most other ntries. And one heartily recommends all readers of THE OPLANE to go and see it if, and when, ever it may be put show in their neighbourhood.

fter the show Sir Alan told one that the gallant Mr. nett, a professional cinematographer, who showed him-to be not merely a Jack,—but a Master,—of-all-trades ing the expedition, took something like 20,000 feet of film that this had been cut to 6,000 feet in the version shown. ging by what one saw, one imagines that the said 20,000 could, in fact, be cut into three films each of 6,000 feet.

ne would appeal particularly to aviators,—that is to say, section showing the getting-off and alighting of the rt Singapore, and jobs being done on board, and the dling of the boat at the various halting places, and especi-the doings at Malta when only the pluck and perse-ance of the crew, and of the R.A.F. crew ashore, saved ship from a complete wreck. There were not nearly ugh of these purely aeronautical incidents to satisfy the tors who were present, though what they saw pleased n immensely.

second film could be made out of the purely "travel" ts of the original film. Looking at it from that point of v one did not see nearly enough of much of the extra-narily beautiful scenery over and along which the Singa-flew. And a good deal more might have been shown of the historical cities and of the quaint native habita-s along the route.

third film, probably shorter than the others, might per-s be composed for those cinema fans who, if they cannot e heart interest in the film, most have fleshly interest. ning the Singapore into a bathing machine at Cape Town the benefit of a kind of bathing beauty chorus, obviously sted for the purpose, had nothing to do, good, bad or in-erent, with the Sir Charles Wakefield Air Survey flight. excuse for putting it in is that something had to be done to attract one particular class of cinema-goer, and the kind of person who caters for his or her debased taste. That is why at the beginning of these notes one said that 99 per cent. of the film will appeal to everybody. The bathing incident, which probably does not occupy more than 1 per cent. of the film simply gives a touch of vulgarity to what is otherwise a truly magnificent piece of work.

Everything else about the film is sincere. This bit is pure fake. So perhaps it, together with some of the sordid domestic details of nigger life which happened into the film, might be cut out and made into a third film for those who like such things.

Still, even that touch of vulgarity need not keep people away from one of the most interesting films one has ever seen.—C. G. G.

A BRISTOL JUPITER FILM.

The Bristol Aeroplane Co. Ltd. gave on Nov. 8 a private exhibition of a film depicting the processes of manufacture of their famous Jupiter aero-engine which has been prepared and used for the instruction of R.A.F. personnel at service stations, and is shortly to become visible to the general public.

This film shows Jupiter components being made at the Bristol works at Filton, the engine in process of assembly and dismantling, and running both on the test bed and in the air. Short of actual acquaintance with the Bristol engine shops it gives the best possible idea of the care taken to secure perfection in material and workmanship observed in these works, and the section dealing with assembly demonstrates in most convincing fashion the accessibility of this design

The film is to be exhibited at the Imperial Institute, South Kensington, and very probably at other easily accessible places. All those who take any interest either in aero-engines—or more generally in the technique of modern high class engineering production methods will do well to see this film at the first possible opportunity.

READING COVERS FOR "THE AEROPLANE."

Reading covers for THE AEROPLANE suitable for use in Clubs, Libraries, Messes etc. are now available.

The covers are black with gilt lettering and are intended to contain and preserve the current issue of THE AEROPLANE. They may be obtained at 3s. 6d. each, post free from THE AEROPLANE Book Department, Cannon House, Pilgrim Street, E.C.4

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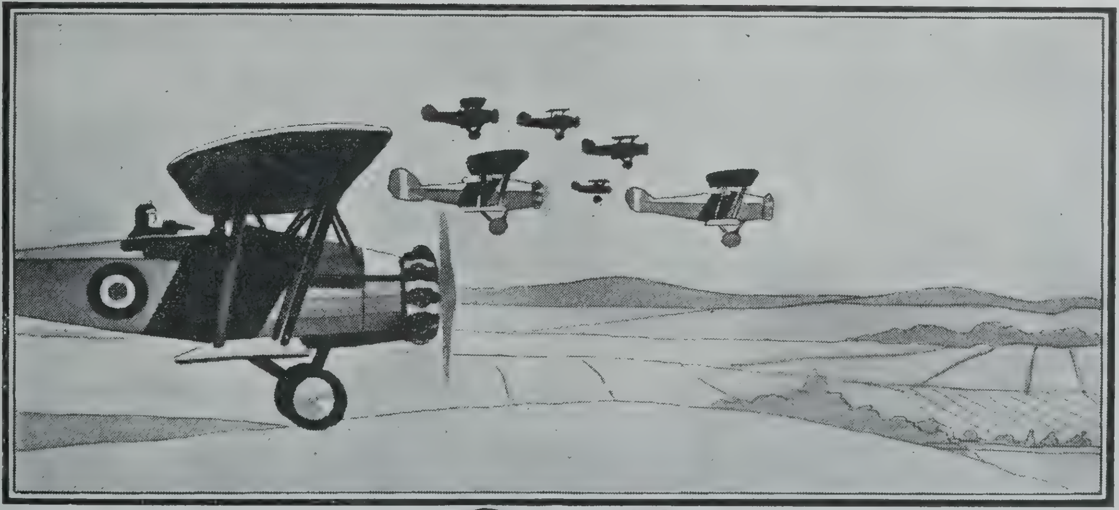

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A LONDON—PRAGUE AIR SERVICE.

Speaking at a dinner given by the Czech Society of Great Britain, to celebrate the tenth anniversary of the Republic, Sir Samuel Hoare said that continued effort had been made to establish a regular air line between London and Prague, but there had been difficulties of money, of international relations with other countries and of contracts.

He was glad to announce however that thanks to the great help given him by Dr. Benes and by Mr. John Masaryk, the Czechoslovak Minister in London, these difficulties had been removed and a regular service would, subject to the final arrangement of certain minor details, start in the spring between London and Prague.

AN IMPROVEMENT IN COMPASSES.

The magnetic compasses for aircraft made by the Pioneer Instrument Co. of New York are now fitted with the Titterington micrometer compensator, an arrangement which greatly simplifies the correcting of compasses.

The essence of this compensator lies in the use of two sets of permanent magnetos, each having North poles at both ends and a South pole in the middle. Such a magnet has no external field and produces no effect on a compass in its vicinity.

Each of these magnets has mounted around it a soft iron shield, of about half the length of the compound magnet, which can be moved along the magnet. When the shield is central over one magnet that magnet still has no external field. If it be moved towards one end it shields that end more completely than the other, and an external field is at once produced. This field can be varied in strength by moving the shield more or less from the central position, and reversed in sign by moving to one or other side.

By arranging two such variable magnets, one fixed fore and aft and the other athwartships, the usual process of compensating a compass in an aeroplane becomes a simple process.

The shields for the two magnets are movable by turning two slotted heads projecting from the compass case with a small non-magnetic screwdriver—a coin will serve. The aeroplane is headed due North magnetic and the slotted head marked N.S. is turned till the compass reads N. The aeróplane is then headed West, and the head marked E.W. is turned till the compass reads W. The machine is headed South and if any error is then found, the first head is moved until the error is halved, and the same process of halving the error on an East heading is performed with the E.W. head.

All that now remains is to make out a compass correction card in the usual manner.

A HANDLEY PAGE BULLETIN.

The first number of a monthly publication known as *The Handley Page Bulletin* has just been issued. Officially it is priced at 6d., but one gathers that a copy will be sent to anybody interested in aviation who sends a request, together with his, or her, name and address, to Handley Page, Ltd., at Cricklewood, London, N.W.2. Questions about the wing-slot or any other Handley Page inventions will gladly be answered.

The Bulletin is published in English, French and Spanish. The first issue contains a trenchant article on air accidents and wing slots, which says boldly that a bad air accident is aviation's sincerest friend and that the criticism implicit in every air accident should be listened to with the keenest attention. One quite agrees with the statement that those who ignore that criticism are guilty of criminal folly.

PERSONAL NOTICES.

DEATHS.

CHADWICK.—On Nov. 6, at Preston Moor, Yorkshire, as the result of a flying accident, AC.2. Henry Chadwick, R.A.F.

COUPE.—On Nov. 7, near Boothby Graffoe, Lincolnshire, as the result of a flying accident, Richard Harold Coupe, Plt. Off., R.A.F.

Mr. Coupe entered the R.A.F. with a short service commission in July, 1928, and was under instruction at No. 2 F.T.S.

CRUTCH.—On Nov. 8, at Clifton, Beds, the result of motoring accident, John Henry Crutch, late R.A.F., aged 31.

FINDLAY.—On Nov. 5, at 44, Priory Road, Hampstead, Capt. Robe Morton Findlay, late R.A.F., aged 30.

GORDON.—On Nov. 8, at St. Andrew's Hospital, Fife, as the resu of a motor accident, Capt. R. W. Gordon, Royal Marines, Flg. Of R.A.F.

LOCKWOOD.—On Nov. 8, near Buckingham, as the result of a flyi accident, Sjt. Herbert Edward Lockwood, R.A.F.

MADOCKS.—On Nov. 9, at Brooklands Aerodrome, in a flying ac dent, Lieut. Gwynn Henry Buller Madocks, Coldstream Guards, elde and only surviving son of Brigadier-General W. R. N. Madocks, C.I C.M.G., D.S.O., and Mrs. Madocks, of Glanywern Hall, Denbig aged 25.

MYERS.—On Nov. 6, at Preston Moor, Yorkshire, as the result of flying accident, Charles Lilburn Myers, Plt. Off., R.A.F.

Mr. Myers entered the R.A.F. in September, 1927, and after a cour of flying instruction at No. 5 F.T.S., Sealand, he was posted to No. (Army Co-operation) Squadron.

FORTHCOMING MARRIAGE.

THOMPSON—HULTON.—The engagement is announced betwee John H. Thompson, late King's African Rifles and R.A.F., and Lad Hulton, widow of Sir Edward Hulton.

BIRTHS.

ACLAND.—On Nov. 9, 1928, at Oakenshaw, Northwood, Middlese to Mary, wife of Sq. Ldr. W. R. D. Acland, D.F.C., A.F.C., R.A.F. a daughter.

LOCKWOOD MARSH.—On Nov. 7, at Woking, to Diana an W. Lockwood Marsh—a son.

WHELLOCK.—On Nov. 1, at Bicester Nursing Home, to Flg. Of C. S. Whellock, R.A.F., and Mrs. Whellock—a daughter.

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THE AEROPLANE—NOV. 21, 1928.

RESEARCH.

THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXXV. No. 21. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

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"LIKE SOME WATCHER OF THE SKIES."

(John Keats.)

THE GOD OF WATERS:—A Canadian Vickers Varuna at The Pas, Manitoba. In Hindoo mythology Varuna is the god of waters. This type of machine is largely used for forest patrol against fires and for transport of officials.

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ON RESEARCH.

Next year, 1929, ought to be one of the most remarkable in e history of Aviation all over the World. So far as this untry is concerned, the Air Force Display having been stponed, through the good will and foresight of the Air nistry, so as to make it an inspiring prelude to the Aero ow, we ought to have an enormous influx of visitors from eign countries. Our manufacturers will, no doubt, do eir best to put into the air at that period, for demonstran purposes at the various aerodromes round London, amples of their very best machines so as to impress itors from overseas. The holding of the Schneider Trophy ntest in this country in August or thereabout will again us the attention of the World not only on our aircraft t on our methods of doing things aeronautical, whether ial or scientific.

Apart from this, the rapid growth of interest in aviation ong all classes of people will cause a corresponding wth in the amount of flying, whether by flying-schools, joy-riding concerns, by flying clubs or by private owners.

n the United States, though the population is barely ice that of the British Isles, the distances are so great the trains are so bad that practical flying is far more vanced than it is here. One of the leading authorities in erica told one the other day that they reckon that five usand Civil aeroplanes will have been built and put into by the end of this year, and that the American aircraft ns will turn out ten thousand Civil aircraft next year.

n Canada and Australia similar advances on a similar le are recorded, allowing for the smaller populations. lia is beginning to take an interest in aviation. At least Indian transport firms are being formed with capital vided by native Indians.

n the Continent of Europe flying is also becoming rapidly re popular. In Germany people travel by air-line as dily as by rail,—and as cheaply, thanks to the subsidies ich the Government can afford, thanks to having no Air ce to maintain.

n fact, everything points to the beginning next year of a m in aviation. Therefore we shall all do well to remember that there is a vast difference between a commercial m and real progress.

Profits and Improvement.

When there is a boom demand for a given product manufacturers of that product are rather apt to be content with producing it without improving it, except in so far as they improve methods of production so as to improve their profits. And if our ideas of aircraft design and construction remain more or less where they are simply because people have ceased to regard being killed in an aeroplane accident as anything unusual, and therefore accept flying as a popular method of transport, the result will be truly lamentable.

Fortunately there are always a certain number of enthusiastic souls who are keener on their work for that work's sake than they are on the money which it brings them, and so there will always be a number of people filled with a divine discontent and a desire for true progress.

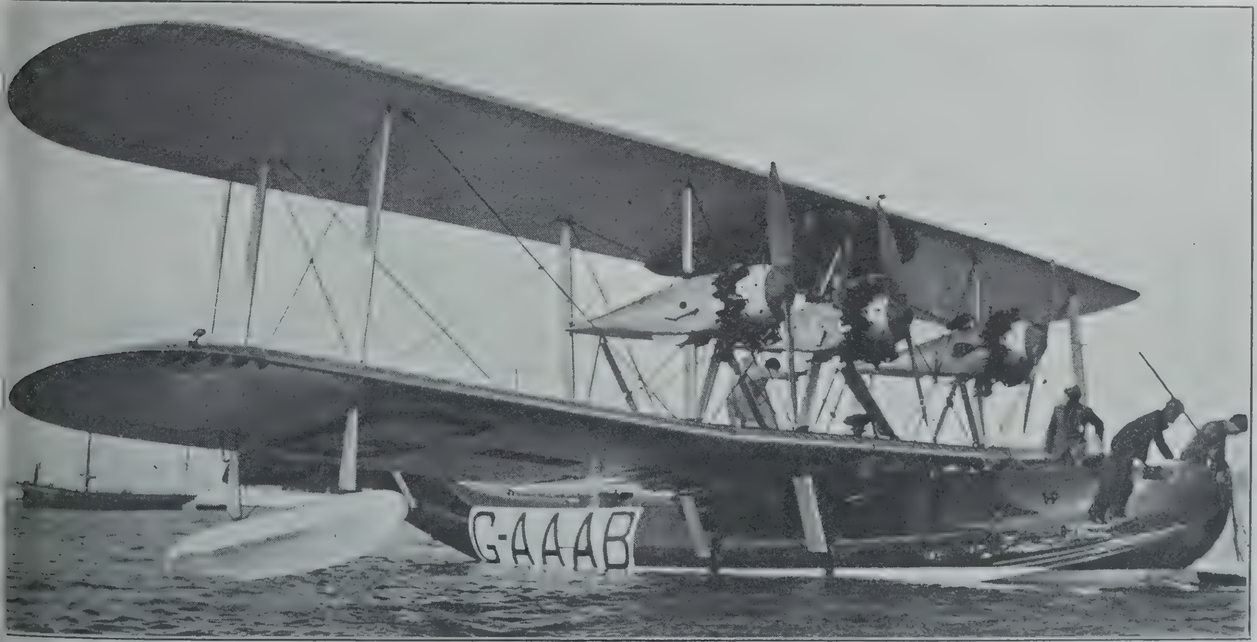
Nobody is going to deny that our aircraft to-day, especially British aircraft, are wonderful transport vehicles and are wonderfully safe. But nobody who knows anything about aeroplanes will deny that there is plenty of room for improvement in aeroplanes and engines, in that they can be made very much safer and very much cheaper to buy and to run. Therefore there is obvious need for pressing forward research if we are to get the best possible value out of air transport.

Unfortunately research costs money. And though some firms which made money out of aircraft during the War 1914-18 have done a large amount of research work, and though the Air Ministry spends something like half a million pounds per annum on research on its own account, without counting what it spends on ordering experimental aircraft and engines from the Aircraft Industry, there is still need, not merely for more research, but for much quicker research.

An Outside Opinion.

In this connection the following letter from a successful business man whose success is largely the result of adequate research will be found of considerable interest :—

Sir,—After the lessons of the war, in regard to the volume of scientific experiment, it was said that this country was to turn over a fresh leaf, and encourage systematically those who came forward with new ideas. We are afraid, however,



A FLYING YACHT.—The Supermarine Solent (three 425 h.p. Armstrong Siddeley Jaguar engines), which was chartered as a private yacht by the Hon. Ernest Guinness. Piloted by Mr. H. C. Biard, he flew from Cowes to Kingstown in 4 hrs. 20 min. and thereafter went for a pleasure cruise in Ireland.

that in many cases it is little more than lip service we are still paying in this country, to invention and research.

Take aeronautics.—Daily we are brought into touch with inventors. Many, we find, are devoting their ingenuity towards solving problems in aviation. Many, too, ask our advice as to having their inventions tested without delay in an independent and technically conclusive way. What can one say?

The Air Ministry has too small a grant for purely experimental work. It is unable, for lack of funds, to explore many avenues which its experts seek urgently to traverse. It cannot be expected to have time, or funds, for investigating promptly, on an experimental basis, a large number of outside ideas.

As for the Aircraft Industry,—it has as much as it can do, generally speaking, to keep its head above water, and certainly cannot devote the time it would like to experiment.

Inventors are between the devil and the deep sea. Officially we starve aeronautical research, while our firms, with a few exceptions, are unable to bear the burden of experimental work.

In Germany, where they lead the world in air research, arrangements are made officially whereby laboratories all over that country—chiefly those connected with Universities —are in a position to investigate any and every idea of private origin which seems worthy of being tested.

It is agreed that aviation is vital to the Empire. That being so we suggest that it is essential that there should be in this country some central, completely-equipped, laboratory and experimental station staffed by experts whose sole task it would be to probe thoroughly, and immediately, every new air idea submitted by inventors for its consideration. It should be in a position, also, to conduct full-scale trials in cases where these were justified.

One realises that many schemes submitted would be unworkable. But we are perfectly certain that it would repay a thousandfold to foster, rather than neglect, the clever brains outside official or trade circles which are now seeking so ardently to improve the speed, safety, and practicability of aerial travel.

Barimar Ltd. (Signed) C. W. BRETT (Managing Director).

AS THINGS ARE.

The official reply to Mr. Brett's suggestion, if a Question were asked about it in the House of Commons, would be that any inventor who has an idea, whether patented or not, for the improvement of anything aeronautical, has only to take it to the Air Ministry, and that if the official experts judge it to be of any value it will be tested impartially on behalf of the Air Ministry either at the Royal Aircraft Establishment at Farnborough or at the National Physical Laboratory at Teddington.

But the trouble is, as Mr. Brett suggests, that the Air Ministry grant for purely experimental work is in fact too small,—in spite of the half million or so pounds per annum spent by the R.A.E. at Farnborough. And so an undue amount of time passes before experiments can be made.

The N.P.L. at Teddington is always far behind in its experimental work, owing to pressure of work and likewise lack of money. Moreover it is not primarily interested in aeronautics. And so aeronautical experiments have to tak their turn with all other branches of engineering.

As for the R.A.E., there is always the suspicion that i an inventor submits a really good idea his invention may b held up for months, and even for years, while the brigh brains at Farnborough, who are in fact paid for producin new ideas themselves, try to invent some better way o doing the same thing as the inventor has done. Even whe there is no suspicion of that sort the R.A.E. is so bus experimenting with its own inventions that it does take long time to test anybody else's. For example, the Pobjo engine, which recently passed its type-test successfully, wa actually sent to Farnborough last March, and was only pu through its tests a few weeks ago.

The really wily inventor can, certainly, get his invention tested in other ways. If he happens to have a friend o the spot he may have tests made at South Kensington or a Cambridge, provided that his invention comes within th scope of the experts at those places. Or if he is a goo enough salesman (which few inventors are) he may induc one or two manufacturers to test his invention in their ow experimental shops, or on their machines.

All these methods have their objections, and at the finis the inventor who manages to get his invention properl tested within a reasonable time must be something of specialist in the gentle art of wangling,—without which in peace as in war, achievement of a desired end is difficult.

Therefore there is a great deal to be said for Mr. Brett's suggestion that a central and completely equipped laboratory and experimental station which exists entirely by with and from aviation is desirable. The only question is, who i going to pay for it?

The Aircraft Industry certainly has not the money. And if it had the money, individual members of the Industry would certainly not co-operate in anything which might help general progress and so help their rivals. The British Taxpayer obviously could not be asked to fork out money for the purpose so long as there are doles and pensions to be paid.

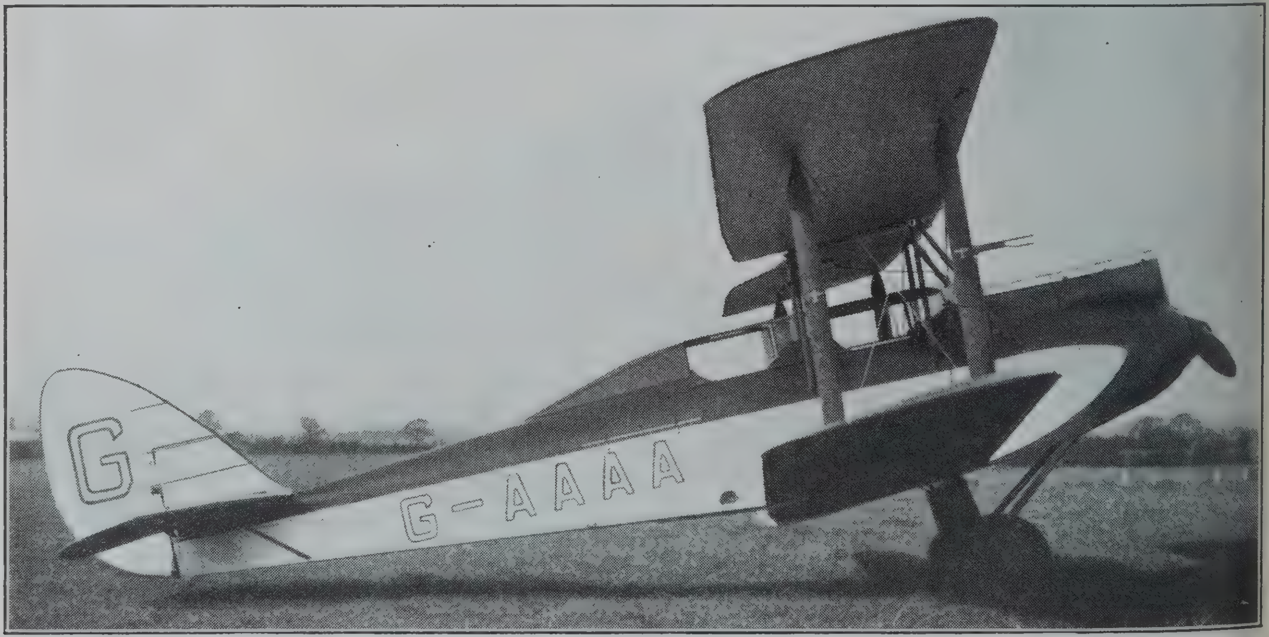
There remains then only the dim hope that some British millionaire, possibly of extraneous origin, such as Sir Basil Zaharoff, who has already founded the Chair of Aviation at the London University, might be induced to put his hand in his pocket for the purpose much in the same way as that good hundred-per-cent. American, Mr. Daniel Guggenheim, has done in establishing the Daniel Guggenheim Fund for Aeronautics.

A FURTHER SUGGESTION.

The foregoing comments were communicated more or less in that form to Mr. Brett, who replied thus-wise :—

I should like to make it clear that I am well aware of the official research and experimental work of the National Physical Laboratory and of the Royal Aircraft Establishment; also of the fact that the Department of Scientific and Industrial Research subsidises a certain amount of work in the laboratories of various universities.

What I have in mind, however, as a very definite need, is something quite different from anything that is provided at present.



SPEED AND COMFORT.—The new De Havilland Coupé Moth (Gipsy) which Capt. Geoffrey de Havilland has been flying recently.—(*"Aeroplane" photograph.*)

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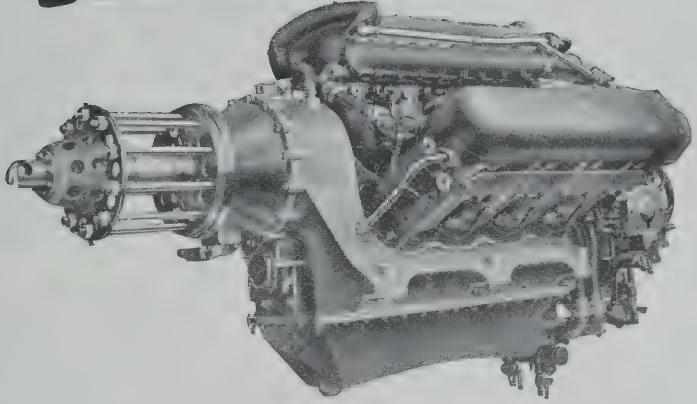

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¶ ON Nov. 4th, 1928, Flight-Lieut. D. D'Arcy Greig, D.F.C., A.F.C., R.A.F., flying a British-built Supermarine-Napier seaplane, fitted with Napier aero engine, achieved an officially timed speed of 319.57 m.p.h. Never before has any human being travelled at such a high rate of speed.

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Apart altogether from official research and experiment I want to see aeronautical problems and inventions tackled under the best auspices by brains in the air world which are outside the official machine.

The plan which commends itself to me, in broad outline, is that a completely-equipped laboratory and full-scale experimental station might be controlled jointly by the Royal Aeronautical Society, Royal Aero Club, and the Air League of the British Empire. As I envisage it, the work of this laboratory would not only be inspired and guided by expert representatives of the bodies I have mentioned but on its committee also would be well-known aeronautical writers.

My conception of its purpose, in a word, is that it would be alive to every new possibility presenting itself, and that it would be absolutely free from the official red tape which is often so stultifying to research.

Apart from its more obvious work of dealing promptly and thoroughly with private inventions, the laboratory would be in a position to undertake, and complete without delay, experiments in general fields not covered adequately by anything done in the official establishments. Its work ought, in fact, to be welcomed by the authorities, because it could probe questions which our very restricted official expenditure on research makes it difficult to deal with adequately.

Granted that, either by co-operative action on the part of the air world or by the generosity of some private individual, such an institution as I have in mind could be established, I am certain that it would prove of extreme value in the development of British aeronautics. Certainly, if operated on the lines I contemplate, it would not overlap upon anything already in existence.

I feel most strongly that vigorous, broad-minded, well-guided private research, carried on in a central establishment which could complete any inquiry by means of full-scale trials, and would be unfettered by any form of Government control, would produce results of the greatest assistance to British aeronautical progress, the very life-blood of which should, of course, be constant experiment along new lines.—

(Signed) C. W. BRETT.

POSSIBILITIES AND OTHERWISE.

Here one is very much in agreement with Mr. Brett. But though in theory joint control by the Royal Aeronautical Society, the Royal Aero Club and the Air League of the British Empire would be ideal, one hardly thinks it would work out in practice.

The Royal Aeronautical Society is a most respectable body, but its collective mentality is too much like that of the type of female who would ordinarily be described as "a respectable body." The Royal Aero Club, though it has certainly waked up during the past year and has taken quite an active part in organising flying meetings, has hardly enough practical knowledge of engineering among those who take an active part in its doing to be trusted with the undertaking of serious research work. And the Air League is very much too busy attacking the Air Ministry and the Royal Air Force to give thought to research work, even if those who are responsible for its policy knew anything much about aviation and its needs.

The more one thinks over this subject the more one envies America the possession of Mr. Daniel Guggenheim and Mr. Harry Guggenheim and the very sound practical council which initiates the various phases of the work of the Guggenheim Fund.

WHAT RESEARCH MEANS.

Research is of two kinds, that which is known as *basic* research, and that which is known as *ad hoc* research. In the former kind seekers after truth dig around blindly, working on more or less established scientific facts, in the hope that something may turn up. In the latter kind deliberate research is made to discover a certain thing,—*ad hoc* meaning "to this," the word "object" or "end" being understood.

Occasionally in *ad hoc* research for one thing quite a different thing, or a different application of the same thing, may be discovered accidentally,—as, for example, the usefulness of the Handley Page slot in assuring control below stalling point, when in fact search was being made for a method of improving lift and slowing landing-speeds. Basic research may, by sheer luck, discover something which revolutionises the whole industry, or science, with which it is concerned. But, on the whole, the cheapest and quickest way of making progress is by means of *ad hoc* research.

That is just where the Americans have scored over us so far. Over and over again their practical aeronautical engineers have started out with one definite end in view, and they have pursued that end until they have got it.

The present improved performances of aircraft practically all over the World is due primarily to the search for the proper stream-line shape of fuselages and engine housings for high-speed racing machines in the Curtiss Company's wind tunnel. The Curtiss designs were brought to this country by Mr. C. R. Fairey five years ago, and those lines dominate the design of the machines with the highest performances all over the World.

Further search for improved performance, and consequent economy of running, caused the invention of the high-pressure wind-tunnel (300 lbs. to the square inch) by a German engineer who was imported to the States just after the War. And the high-speed wind-tunnel with its air-stream of 110 miles an hour, and 20 feet diameter, which the American National Advisory Committee for Aeronautics have at Langley Field was built because the N.A.C.A. wanted to experiment with engines and airscrews on fuselages under flying conditions.

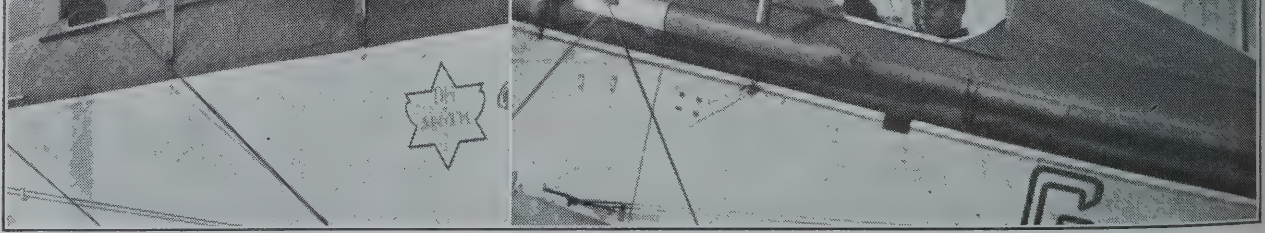
The N.A.C.A. has had its high-pressure wind-tunnel for five years or so, and it has discovered all kinds of things about interference effects as between fuselages and planes and struts and undercarriages and tail units, of which we in this country know but little. We are just beginning to build a high-pressure wind-tunnel.

If only we had a completely equipped laboratory and full-scale experimental station, such as Mr. Brett has suggested, and if we only had the money to run it, regardless of expense, and if we only had the man at the top and a staff to spend that money efficiently and to get results from it, we certainly could make as much progress in the next five years as we are likely to make in the next twenty-five.

This is said without belittling in any way the splendid work which is being done by the Department of Supply and Research at the Air Ministry. There everything possible is done, even to the point of being unconstitutional, to hasten experiments and to urge research. But there are limits to what any Government Official can do. And private enterprise has no limits except those imposed by finance.

Nor are there any limits to the things to be discovered, if Aviation is to progress as it should. Next week we will consider some of these.—C. G. G.

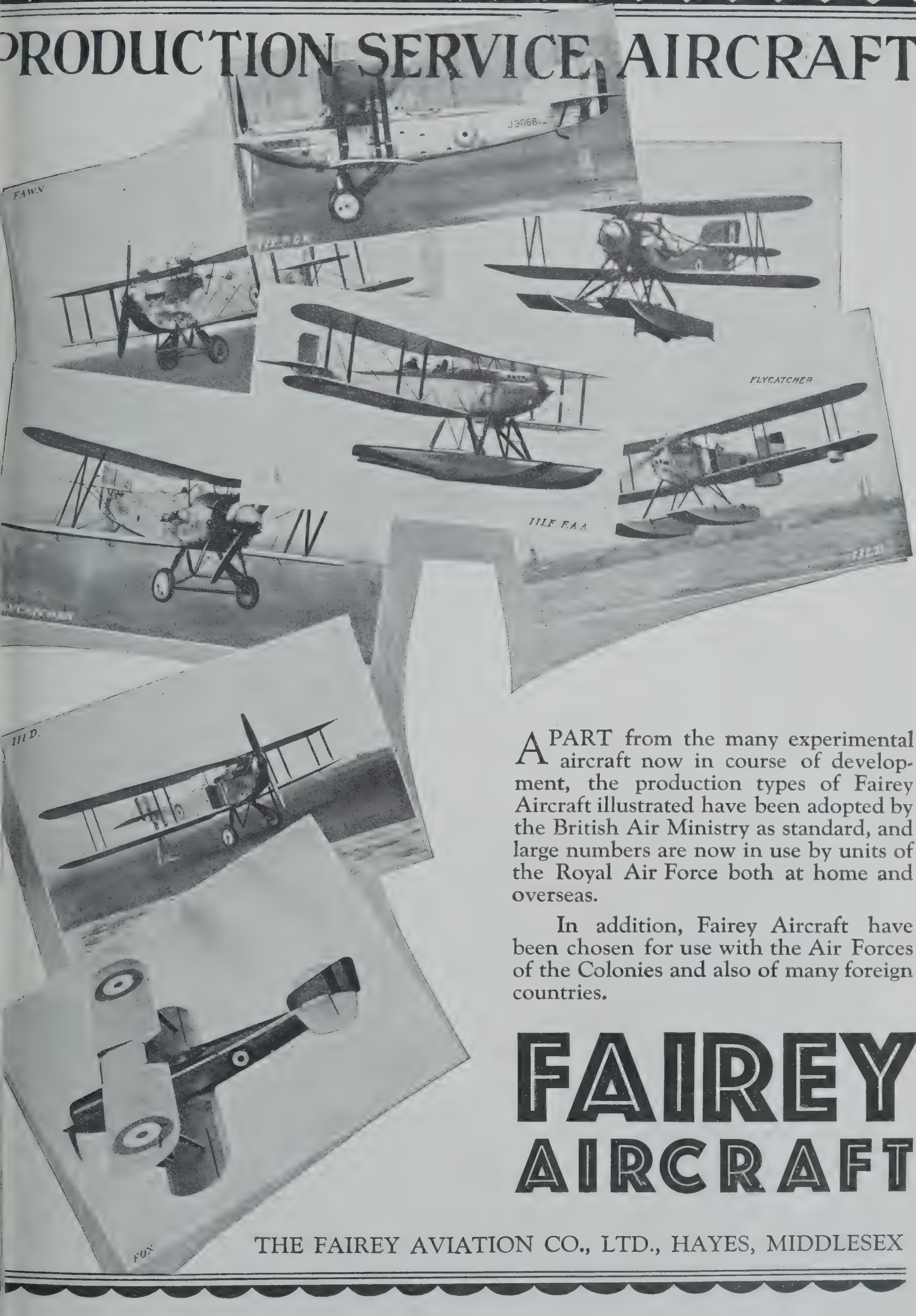
(To Be Continued.)



THE COUPE MOTH.—Right and left views of the coupé top, which can be fitted with little trouble to existing Gipsy-Moths. The little wind-deflectors on the sides of the aft compartment are noteworthy.

(*"Aeroplane" photographs.*)

PRODUCTION SERVICE AIRCRAFT



APART from the many experimental aircraft now in course of development, the production types of Fairey Aircraft illustrated have been adopted by the British Air Ministry as standard, and large numbers are now in use by units of the Royal Air Force both at home and overseas.

In addition, Fairey Aircraft have been chosen for use with the Air Forces of the Colonies and also of many foreign countries.

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THE GOVERNMENT AND THE AERO SHOW

On Nov. 15 the Society of British Aircraft Constructors and the Society of Motor Manufacturers and Traders, as promoters of the Aero Show which is to take place at Olympia in July next, gave a lunch to the Press, including representatives of foreign newspapers in London, in the Abraham Lincoln Room at the Savoy, so that Sir Samuel Hoare, Secretary of State for Air, might explain to the World through the Press precisely the Air Ministry's attitude towards the Show.

Capt. P. D. Acland, Chairman of the S.B.A.C., opening the proceedings, remarked that there was no need to dilate on the public services done by the Secretary of State for Air. He emphasised the fact that the Air Council had altered the whole training programme of the R.A.F. so as to bring the date of the annual R.A.F. Display close to the date of the Exhibition. An Industry which had such collaboration from its biggest and most cherished customer was indeed fortunate, and it was fitting that such action should be recognised.

Sir Samuel Hoare said that, speaking on behalf of the Air Council past and present, and including his successor on the left of the Chairman (Lord Thomson), he was glad to support such an important project. The time was overdue for us to show the World at large the progress which had been made in the last ten years. We had a habit of disparaging ourselves. This was good as a sign of national humility, but reading some of our critics we might believe that we had no Air Force and no British Aviation and that the only progress had been made on the Continent and in America. He looked to the Show to give us a proper focus for our vision. It would provide evidence of progress since 1920 and it would show a fine record.

Without being self-complacent, we would compare Flt. Lt. Greig's recent high-speed flight with the speeds which were good enough to win the Schneider Trophy two years ago. The flight of 17,000 miles made by the Under-Secretary of State for Air, Sir Philip Sassoon, since the beginning of October, was significant for the way it had been received. A few years ago it would have seemed miraculous. To-day it was regarded as a matter of course. The series of long distance formation flights which had been made of late by the R.A.F. were part of the ordinary routine training of the Air Force, but no other country had done anything like them.

Further instances of progress were seen in technical development. Our engines were half as heavy and twice as powerful as they were a few years ago. Our machines were of cleaner design.

Similar progress was seen in material. In the substitution of metal for wood we were ahead of all other countries. The Far East Flight by four all-metal Southampton flying-boats proved it in practice. The new airships now approaching completion showed another great advance. We really would have something to show the public.

The Exhibition had the full support of the Government and of the Air Ministry,—but without a subsidy. Someone had remarked "Shame." On the contrary, this also was a mark of progress. It was the first Aero Show in the World not to be subsidised financially. It would be all the better on its own foundation. The public would be the more impressed.

But in other ways the Government would give it the fullest support. The R.A.F. Display had been arranged to take place two days before the opening of the Show. This had been very difficult to arrange and that fact showed the sympathy of the Air Ministry. As fine an Exhibit as possible would be arranged by the Air Ministry as an outward and visible sign of progress.

With the Press rested the task of making the Show a success. They would then find that the Show would be of the greatest interest to the young men and women of to-day. He hoped that the Show would mark the beginning of a new period in British Aviation.

Capt. Acland, proposing the Toast of the Secretary of State, said that the close co-operation of the Government was welcome. He felt that the general public had not seen what we and aviation people abroad had been doing. Besides manufacturers of aircraft and engines other interests were involved. We must not forget the help given by that great man Sir Charles Wakefield in the many great flights which were helping to weld the Empire together. Only recently had progress in that direction enabled us to achieve demonstrations of the possibilities of seaplanes and flying-boats. He was sorry that Sir Philip Sassoon was not able to be present.

Our friends in the aircraft industries abroad had been very active in recent years. We had had very cordial invitations to their Shows, so we hoped that we should have representative exhibits from foreign nations at Olympia. The Show would be arranged to educate the public in their inquiries about progress.

He remarked that on hearing that the Air Ministry would show at Olympia, the organisers had placed space at their disposal on "most favoured nation" terms. He hoped that the Air Ministry would show how safety was being secured by the official system of inspection.

The Royal Aeronautical Society would arrange a historical section in which special attractions would be offered for young people at schools. Good foreign support had been promised, and the Show would provide a comprehensive picture of international life assisted by air communication.

Mr. Handley Page, proposing the Press, said that like the Aircraft Trade the Press were unsubsidised (Hear, hear.—Ed.). Aviation was deeply indebted to the Press for its support from the earliest days, especially in the matter of the prizes offered by the late Lord Northcliffe. He referred to Mr. Bert Hinkler's flight as a subject of pride for the whole Empire. He looked to the Press to enlighten the public. The Government had recently admitted to the franchise a large body of new voters who needed enlightenment. He gathered that this large body was particularly interested in materials. The Press alone could educate them.

Sir Roderick Jones, replying for the Press, said that they endeavoured to turn an honest penny and would certainly support the Show.

Lord Thomson, proposing the health of the Chairman, said that July next seemed to him to be a remote and unimaginable period. (The General Election is expected in June.—Ed.) He said that the R.A.F. was not only the best customer of the British Aircraft Industry but it was also its best advertiser. (A well-made point.—Ed.) He was not going to say much about the Chairman. Capt. Acland had proposed his (Lord Thomson's) health on two occasions and had made dark references to his past in the Middle and East of Europe. Both of them were old soldiers. The Chairman had chosen commerce and he himself had chosen politics. He hoped that the Chairman's business was less difficult and tortuous than his own.—C. G. G.

THE ROYAL AERONAUTICAL SOCIETY.

On Thursday, Nov. 22, Major T. M. Barlow, F.R.Ae.S., Chief Engineer of the Fairey Aviation Co. Ltd., will lecture before the Royal Aeronautical Society at the Royal Society of Arts, at 18.30 hrs., on The Weight of Aircraft.

From the earliest days of aviation aircraft designers have been engaged in a constant struggle to reduce the weight of aircraft consistent with strength and safety. In the course of his lecture, which will be fully illustrated, Major Barlow will point out how weight has been saved during the past ten years, and how further reductions in weight can be foreshadowed. Major Barlow deals with all aspects of the problem, from the effect of weight and size on performance, to the possibilities of reducing engine weight, chassis weight, airscrew weights, etc., and shows that with present materials, engines and construction there is a definite limit for the aeroplane, and a definite limit to the range which can be expected from it. The whole problem is considered in close detail, and the results given are of the greatest importance to every designer.

AIR ROUTE CONGESTION.

A conference has been held at the Air Ministry at which the firms now operating the air services between London and the Continent were represented to consider how to reduce the risks of air collisions due to the increase in the number of private owners of aircraft.

During the past year a considerable number of private owners flying light aeroplanes have gone to the Continent and back along the recognised air routes, very often without reporting their movements to the terminal aerodromes. With the approach of winter and bad weather the risk of collision is intensified as long as private aircraft continue to use the regular routes.

A suggestion has been made that all such aircraft be compelled to land at Croydon or Lympne, before proceeding abroad, to report their intentions. A similar arrangement in France would then enable the authorities at either end of the route to estimate the amount of traffic on the route and, if necessary, warn the regular air-line aircraft by wireless.

A SYRIAN SURVEY.

Officials of Air Union are it is reported now engaged on a reconnaissance of the northern coast of Syria to discover a suitable site for a seaplane depot to be used on the projected mail service between Marseilles and Beirut.

Beirut itself will be used for the delivery and loading of mails, but the cost of purchasing land for workshops and the like is said to be prohibitive, and at the moment the most favoured site for the main depot is one in the neighbourhood of Latakia, north of Beirut, where a small bay will serve as a normal alighting area, while Lake Homs, some 20 miles inland, will afford sheltered water in the event of bad weather on the coast itself.

The service will run at ten-day intervals—later to be reduced to seven days—via Naples, Corfu and Athens. Eventually a connection with Imperial Airways to India is contemplated.

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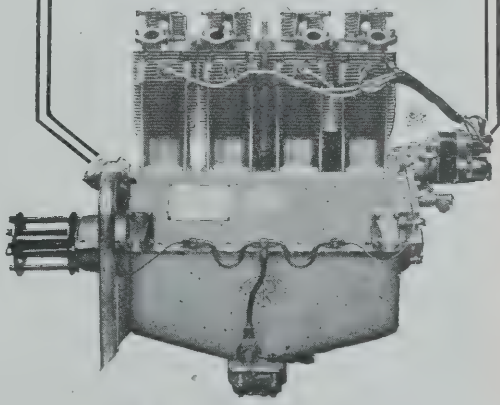

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THE RETURN OF SQUADRON-LEADER HERBERT JOHN LOUIS HINKLER, A.F.C., D.S.M.. R.A.A.F.

Never has there been a more cheery evening than that enjoyed by the privileged sixty or so who were able to crowd into the room for the first Monthly House Dinner of the season at the Royal Aero Club on Nov. 14. The occasion was the greeting of Bert Hinkler on his return from Australia. And his welcome was of the heartiest.

To everybody in British Aviation he will never be anything but Bert Hinkler, except when they refer to him as "Our Bert." That is why one has given his full name and title at the top of this article. THE AEROPLANE is habitually opposed to the use of familiar names and of slang, but when a man has become a national hero, even though it may be only to one class in the nation, he cannot be called by any name other than that by which he is commonly known.

Bert Hinkler has certain qualities in common with that other great aviator, Charles Lindbergh. He has the same gentle and quiet manner, and the same simple and direct way of speaking. He is as supremely devoid of self-consciousness, as supremely self-confident, and as delightfully free from self-importance.

He imposes his ideas on nobody, but he is more often right than most of us can ever hope to be. And he has a brand of humour of his own which, if he had to do much public speaking would surely become known as Hinkling.

The Lord Thomson of Cardington, Chairman of the Royal Aero Club, was in the chair, and welcomed Squadron Leader Hinkler home from his own home,—emphasising the rank of the guest and his two homes, here and in Australia. Lord Thomson remarked that Squadron Leader Hinkler's journey cost less than a second-class ticket by boat, and only took sixteen days. He said that the flight was an example which should be set.

Bert Hinkler, after the applause had gone down, said that his first duty was to say how sensitive he was of the great honour done to him that evening.—Most of us thought it was the other way round, and that he was honouring the Club. He said that he had wanted to go home, and being in possession of quite a good aeroplane, he went the cheapest way.

He took off on a thoroughly dud morning from Croydon and he never saw France until he got somewhere near Lyon. After that he had to fly low down the Rhone Valley because of a strong head wind instead of going over the Alps as he intended. That meant that he had to go round the Gulf of Genoa, and darkness fell some hours before he reached Rome. When he got near Rome he saw immense flash signals and imagined that under Mussolini the aerodrome at Rome must be more up-to-date than ours at Croydon. But he found that the signals were only advertisements. After that he tried to find the Centocelli aerodrome, but could not find it because the lights of the suburbs of the city went so far south-east that he thought the aerodrome was farther away than it was in fact, and there were no lights to show where the aerodrome was. He began to think they must have sold the place.

Finally, relying on his memory of his landing ther eight years ago, he zig-zagged towards the city from a lon way out and found the place by the moonlight. The war ing light on the wireless mast was about as brilliant as tail-light on a car. When he landed the official in charg insisted in having everything pulled out of the machine see whether he was carrying photographic apparatus, whic is strongly forbidden in Italy. The result of all thi officialism was that he got to bed about 1 a.m.

He was up before dawn, and thoroughly enjoyed th voyage down the coast of Italy, reaching Malta in six hour at about 3 p.m. Here he met for the first time the wonde ful comradeship and help of the R.A.F., which he foun just the same wherever he struck the R.A.F. all the way Australia.

From Malta he did not like the journey across the Med terranean, and was glad to reach the first Italian Air Statio at Benghazi. Here he found the Colonial Italians the best friends and very helpful, just like our R.A.F., and not bit official or officious.

From Benghazi he wanted to reach Tobruk, but darkne came on before he reached there and he had to land in th Desert. It looked all right from above, with little spot on it. When he came down he found that the spots wer big bunches of camal-thorn or something of that sort. H Avian folding undercarriage stood the landing all right an the Fairey-Reed metal airscrew acted as a splendid law mower. There was nothing of human origin in sight, so h pulled out his little indiarubber inflatable boat and foun that by turning it upside down it made a far more comfor able bed than he struck in any hotel on the journey.

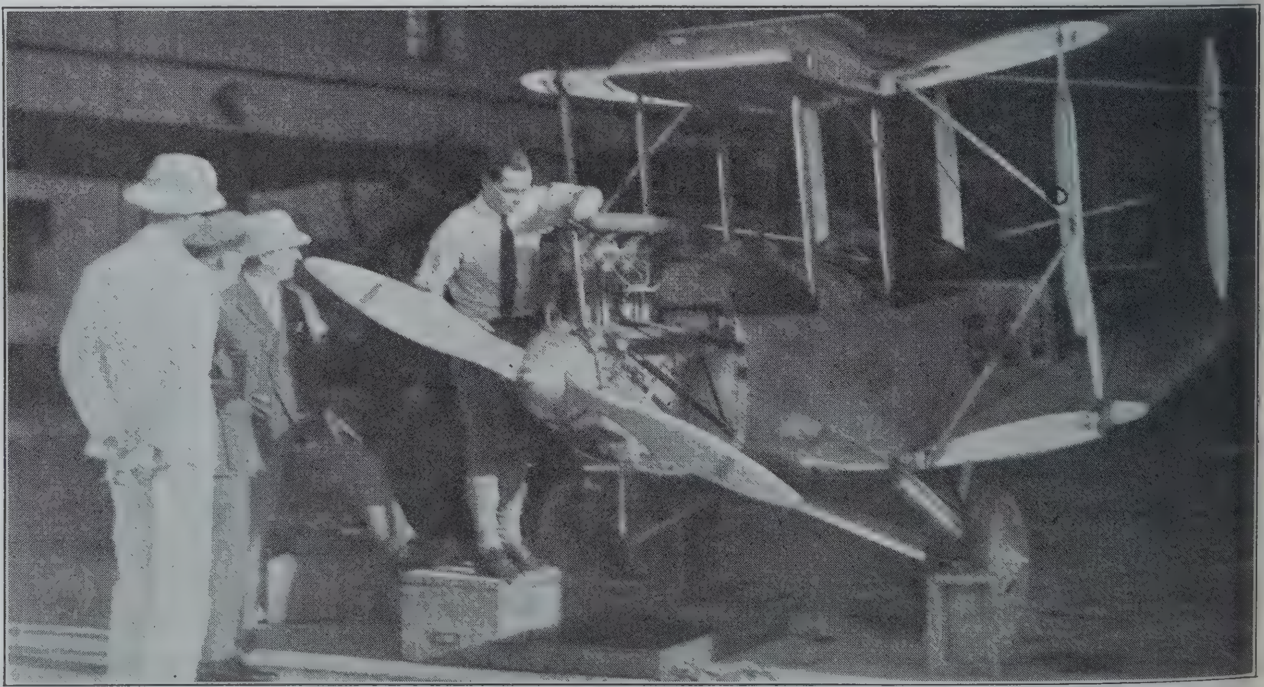
In the morning two Arabs appeared from nowhere an instead of being hostile, helped him to clear a track fro which to take off. He remarked that when he took off the were just like schoolboys seeing an aeroplane start for th first time, dancing and waving to him,—he found peop the same all the World over.

At Tobruk the Italians were as kind as in Benghazi.

There he filled his tanks, for having no permit to fly Egypt, and Egyptian officials being famous for their officia dom, he had to fly over it. So he landed late that evenin in featureless desert to the east of the Suez Canal, near standing on his nose in soft sand. There he was immed ately surrounded by Arabs, who come from nowhere. H said they spoke quite good Arabic, and though he did n happen to understand any of it they got along quite we with the language of cigarettes.

He folded his wings and persuaded the Arabs to push th machine to a hard spot not far away. There he spent th night with the Arabs. They lit a fire, and conversed wit him amiably with cigarettes,—his cigarettes. When he wok up in the morning he found himself surrounded by heap of rags. But when he got up the rags got up too an turned out to be the Arabs.

Thence he flew to Ramleh, and as usual was entertaine by the R.A.F. Although it was early in the day he was to



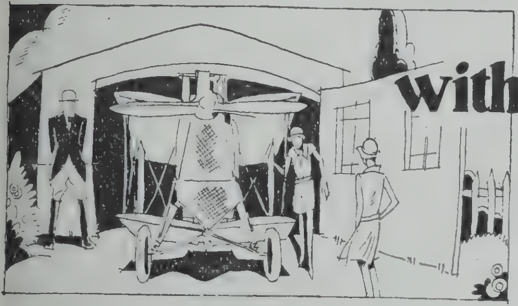
ON THE WAY OUT.—Bert Hinkler at Karachi, inspecting the Cirrus engine in his Avian, which is seen in the typical kneeling attitude in which it goes to bed.

The Committee of the Lessland Aero Club.......

The Squire suddenly became smitten with Air-mindedness. Around him, therefore, rallied the lads and lasses of the Manor and a Committee was appointed to discuss ways and means.

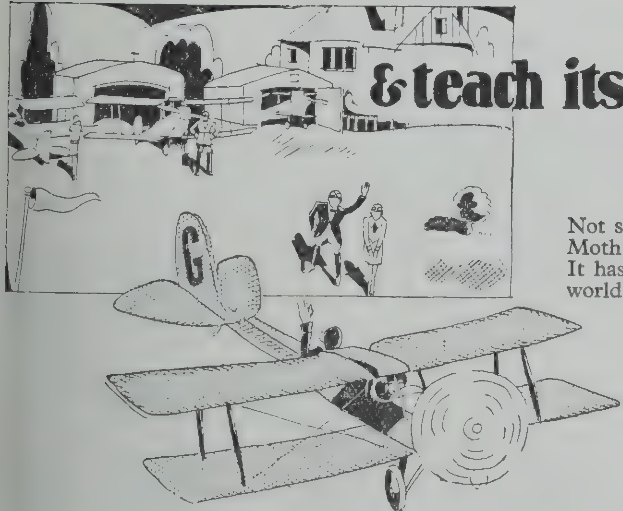
decided to fall into line....

The question of subs. and a bar having been settled, the choice of a training machine was raised. Those in favour of the Moth showed in the accepted manner.



with the majority of other clubs

They found that it lived up to their expectations. It was cheap to run, easy to house and maintain, simple to understand, and its unfailing reliability inspired confidence in the novices.



& teach its members to learn to fly

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late to start his next long hop to Basrah, so the R.A.F. took him to see the sights of Jaffa, "where," he said "they make oranges."

He left early next morning and flew non-stop to Basrah. He was rather annoyed to find when flying over the marshes near Basrah that he had English visibility of about 200 yards, owing to river mist. There he again stopped with the R.A.F. and left next morning for Jask.

Here he found Mr. James, of the Indo-European Telegraph Co., who is a kind of godfather to aviators passing that way. He described the aerodrome as being miles in extent and apparently made of concrete, it was baked that hard. From the aerodrome he was taken to the village, "but," he said, "there was not that much of it." He started the journey on a donkey. He soon found he wanted a few more hours dual instruction on that class of mount, so he rode Mr. James' bicycle and Mr. James and his family rode the donkey.

The next day he reached Karachi, with a leaking tank. He remarked that flat-sided tanks would always spring leaks through panting, and we ought to have round tanks. However, the R.A.F. people stopped the leak and strengthened the tank. Before leaving Karachi he was warned that he must wear a solar topee, and unfortunately could not keep his ears plugged with the thing on his head. Consequently he had to land at Cawnpore with a splitting headache, and went straight to bed. His head came right after a few hours, and next morning he went on to Calcutta, where he was looked after by Messrs. Leete and Vetch, and discovered one of the original Avro Baby biplanes. Round Calcutta he again found English visibility.

Thence he went on to Rangoon, where he stopped with Mr. Mandelsheim, who kept one particular shirt which he always lent to visiting aviators to sleep in.

The next stop was Victoria Point, where lived a couple of rubber planters always ready to receive aviators hospitably.

Passing Penang on his way to Singapore, he flew over the four R.A.F. Southamptons of the Far East Flight, peacefully at anchor, "a complete picture of what Sunday morning should be." At Singapore he met Mrs. Millar and Mr. Lancaster.

All the way from Calcutta he had been flying through, between and over heavy rainstorms, which were very pretty when you were above them in blue sky. Then they looked like cotton-wool sitting on the tree-tops, but were not so good when you were under them.

He got off from the aerodrome at Singapore in deep mud and flew to Batavia. Here he remarked, "I was told at school that the surface of the earth is made up of three-fifths water and two-fifths land. I think that is a darned modest estimate. There is too much water,—gallons of it." At the Batavia aerodrome he found the Dutch Air Force using the good old 504K Avro for training.

His next stopping point was Bima and on the way he found that there were more rain-storms over the land than over the water. At Bima he had to sleep in a native hut on the aerodrome, where there was not even water to be got. A friendly Dutchman lent him a mosquito net, but the mosquitos got there first. He said that he had never seen so many fire-flies. He believed that they worked in alliance with the mosquitos and helped them to find their victims.

His next hop was to Darwin, a thousand miles. He took four hours to reach Timor, and the rest of the way was over open water, so clear that you could see the bottom nearly all the way. He remarked that the water in those parts was full of fish such as you could not dream of even after the worst of nights.

At Darwin he realised for the first time that people were interested beforehand in his flight. Quite a lot of people were on the aerodrome waiting for him.

Commenting on the flight as a whole, he remarked that a job of this sort consisted on sitting in the machine all day and going round it all night inspecting it. But he added that his Cirrus engine and Avian needed no more than inspection. Nothing had to be done to either throughout the journey. Not only did the engine arrive as it started, but the cargo which he carried also arrived intact, including a case of whiskey, which was delivered to the addressees untampered-with, despite the corkscrews which were also on board.

His flying time to Australia was 120 hours, and while in Australia he did another 200 hours' flying. Altogether the Avian had covered 35,000 miles, and when he put it away in his shed at Bundaberg to come back to England, it and its engine and its Fairey airscrew were still as good as new. He impressed on his audience that to be successful aircraft must be built to avoid the need for small jobs.

Mr. Handley Page proposed the health of "Our Bert." Like St. Paul, being all things to all men, and adapting his phraseology to his audience, he remarked that the thing which struck him most about Bert Hinkler's story was what a hell of a lot of guts he must have. He said how glad he was, after all we had heard about great flights by foreign aviators, that there was someone English to do a flight of this sort and go on day after day. In referring to the long non-stop stages, Mr. Handley Page said that Mr. Hinkler had the flea beaten for long hops.

Mr. Lord, of the Avro Company, and Lt. Col. Darby, of A.D.C. Aircraft Ltd., said how pleased they were to see Bert back and how proud they were that their products had taken part in such a splendid performance.

Sir Frank McClean proposed the health of the Chairman, Lord Thomson.—C. G. G.

CELLULOID HISTORY.

A private view was given at Australia House on Nov. 16 of the film record of Mr. Bert Hinkler's tour of Australia by air after he had flown from London to Sydney in 15¼ days. This film is an ably arranged and extremely interesting record of Mr. Hinkler's flights from one Australian town to another and of his official receptions at the various places.

In many sections Mr. Hinkler's Avian has been photographed from a machine flying alongside, and one particularly good length of film shows the escort of machines of the Royal Australian Air Force, taken from one of them, during the journey from Sydney to Canberra. Photographs from the air of the landing grounds show the arrangements for the control of the crowds and for the landing of the machine at Bundaberg, Brisbane, Canberra, Melbourne, Perth and in Tasmania. There are some "close-ups" of Mr. Hinkler taken in his machine in the air and some wonderful views of the country over which he flew.

The film was presented to Mr. Hinkler by the Famous Lasky Film Service and was afterwards presented by him to the Queensland Government. This Government have loaned the film to Mr. Hinkler, who is going to take it for a tour of the Flying Clubs of Great Britain, where it will undoubtedly be much appreciated, particularly by those who have an intimate knowledge of the Avian machine and its kindred types.—C. M. MCA.

THE MEDITERRANEAN AIRWAY.

On Nov. 15 an Italian Dornier Superwal (four Jupiter engines) arrived at Alexandria from Rome, thus completing the first portion of a preliminary survey for the proposed air-mail service between Italy and Egypt where an Italian company will operate in conjunction with Imperial Airways.

The route was by way of Ostia (Rome), Taranto, Corfu, Navarino, Suda Bay and Tobruk. The return journey began on Nov. 17 during which the flying-boat will visit Argostoli in addition to the places already inspected.

On board the Superwal were Italian representatives under Colonel Pelegrini, with Lt.-Col. H. Burchall, Flt. Lt. B. C. H. Cross, and Mr. F. J. Bailey, as delegates of Imperial Airways.

Two new Italian air routes were opened on Nov. 15, one from Rome to Barcelona and the other from Rome to Tripoli. The route of the former service is by way of Genoa and Marseilles and that of the latter by way of Syracuse. Both services use Dornier Wal flying-boats.

THE WRIGHT ANNIVERSARY DINNER.

On Dec. 17, 1903, twenty-five years ago, Mr. Orville Wright made the first flight in the history of the World in a power-driven heavier-than-air machine. On the same day two flights were made by Mr. Wilbur Wright.

The Science Museum at South Kensington has been entrusted with the care of the original Wright Machine on which these historic first flights were made, so to mark the Anniversary the Council of the Royal Aeronautical Society will hold a Dinner on December 17, in the Science Museum.

The tables for the Dinner will be arranged around the Wright Machine. Colonel Sir Henry Lyons, Director of the Science Museum, has kindly given his permission for the function, and is aiding the Society in every possible way.

The Chair will be taken by the President, Colonel the Master of Sempill, A.F.C., who will also present on this occasion the various prizes and awards made by the Council during the past year. A short address on the early work of the Wright Brothers will be given by Mr. Griffith Brewer, a Member of Council.

Members are specially asked to make early application for tickets, price £1 10s. (including wines) each, as there is no possibility of arranging for an overflow, and it is desirable to provide places for members before including members' friends. No tickets will be forwarded, or places reserved, unless and until the money is received by the Secretary of the R.Ae.S. at 7, Albemarle Street, W.1.

FOKKER AIRCRAFT IN CANADA.

The Fokker Aircraft Corporation of America has negotiated a manufacturing contract with Canadian Vickers Ltd. of Montreal, Canada, for the production of Fokker aircraft in Canada. This explains why the arrangement between A. V. Roe and Co. Ltd. and the European Fokker company excludes Canada.

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FLOWN AND KNOWN ALL OVER THE WORLD

THE ROYAL AIR FORCE.

The London Gazette.

November 13.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—The following Plt. Offs. on probation are confirmed in rank :—L. W. Howard (Oct. 5); K. C. T. Marshall (Oct. 18); N. F. V. Henkel (Oct. 25). The following are transferred to the Reserve, Class A (Nov. 10) :—FLG. OFFS.—C. G. C. Sullivan, E. R. H. Coombes, J. H. Caulfeild, T. A. Hale-Monro, P. Stainer.

Flg. Off. V. A. C. Ross is transferred to the Reserve, Class C (Nov. 10); Flg. Off. A. S. Lewis relinquishes his S.S. comn. on transfer to the Indian Army (Nov. 9); Lt.-Cdr. A. G. Elliot, R.N., Flt. Lt., R.A.F., ceases to be attached to the R.A.F. on return to Naval duty (Nov. 9).

STORES BRANCH.—Plt. Off. on probation M. M. McMullan is confirmed in rank and promoted to the rank of Flg. Off. (Oct. 15).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—J. Paton is granted a comn. in Class B.B. as a Plt. Off. on probation (Nov. 13); F. E. S. Groves is granted a comn. in the Special Reserve as a Plt. Off. on probation (Oct. 8); Plt. Off. F. H. Dight is promoted to the rank of Flg. Off. (Nov. 3); Plt. Off. D. G. Allison is promoted to the rank of Flg. Off. in the Special Reserve (Oct. 23); Flt. Lt. H. V. Stammers, D.F.C., is transferred from Class A to Class C (Mar. 10).

The following Flg. Offs. are transferred from Class B to Class C :—W. W. Saunders (Oct. 6); S. H. H. Swanton (Sept. 11); W. Allen (Oct. 7); H. C. Norman (Sept. 2); A. E. Ansell (Sept. 16). Flg. Off. S. W. Lummis relinquishes his comn. on completion of service (Nov. 11).

MEDICAL BRANCH.—Flt. Lt. J. W. Harper is transferred from Class Dii to Class Di (Dec. 14, 1927); Flt. Lt. D. Le Bas relinquishes his comn. on completion of service, and is permitted to retain his rank (April 1).

Appointments.

Week ending Nov. 19.

GENERAL DUTIES BRANCH.—Flight Lieutenants G. G. Walker, M.C., to No. 2 Armoured Car Coy., Middle East, 25/10. V. R. Gibbs, D.S.C., to R.A.F. Staff College, Andover, 22/10.

Flying Officers H. A. S. Byrne, to No. 504 Sqdn., Hucknall, 18/11. V. G. A. Hatcher, to R.A.F. Base, Malta, 2/11. R. K. Coupland, to R.A.F. Depot, Uxbridge, 12/10. G. M. Beattie, to R.A.F. Depot, Middle East, 1/11. J. St. C. Arbuthnott, to No. 100 Sqdn., Bicester, 6/11.

Pilot Officers K. C. T. Marshall, to No. 26 Sqdn., Catterick, 4/11. A. C. R. Mackenzie and E. C. Ridler, to R.A.F. Depot, Uxbridge, on appointment to S.S. Comns. (on probation), 9/11.

MEDICAL BRANCH.—Flying Officer G. T. O'Brien, to R.A.F. Depot, Uxbridge, 12/11.

The Far East Flight.

The Far East Flight, R.A.F., under the command of Grp. Capt. H. M. Cave-Browne-Cave, D.S.O., D.F.C., which left Singapore on Nov. 1 on a six weeks' cruise, arrived at Hong Kong on Nov. 18 from Manila.

Sir Philip Sassoon's Journey.

The Under-Secretary of State for Air, Sir Philip Sassoon, described his visit by air to the R.A.F. Units in 'Iraq, India and the Middle East, in an interview with the Press at Gwydyr House, Whitehall, on November 14.

Sir Philip Sassoon, accompanied by Air Commander Longmore, started on Sept. 29 from Cattewater in a Blackburn Iris flying-boat (three Rolls-Royce Condor engines), piloted by Sq. Ldr. C. L. Scott, D.S.C., and Flt. Lt. L. Martin. The weather, on the morning of the start was so unfavourable that the Imperial Airways Southampton-Guernsey flying-boat service was not running. With 900 gallons of fuel on board the Iris took the air at 14 tons. To avoid the fog and low clouds they had to fly alternately at about 50 feet above the sea, and above the cloud layer, until they reached Ushant, where better conditions prevailed.

The first stop was on Lake Hourtin, the French seaplane base near Bordeaux. Here they re-fuelled and, taking off again, followed the rivers Garonne and Rhône over the 350 miles of land to Berre, near Marseilles. The last part of this stretch was made in fog and cloud and they did not alight till after dark.

On the second day they flew to Naples, where they were received by General Balbo, Italian Under-Secretary of State for Air and the Marchese de Pinedo, Chief of the Italian Air Staff.

On the third day they left Naples at 10.00 hours and arrived at Athens at 16.00 hours, thus, as Sir Philip explained, giving him time to see the museums in Naples in the morning and the museums in Athens in the afternoon. The route took them round part of the coast of Italy and through the Gulf of Corinth.

On the fourth day they flew from Athens to Abukir, passing Crete and crossing a wide stretch of the Mediterranean.

At Abukir Sir Philip Sassoon and Air Commodore Longmore left the Iris and flew in a Fairey III.F to Cairo. During the two days they stayed in Cairo Sir Philip visited No. 4 Flying Training School at Abu Sueir, No. 45 (Bombing) Squadron at Helwan and No. 208 (Army Co-operation) Squadron and No. 216 (Bombing) Squadron at Heliopolis.

On October 5 and 6 Sir Philip Sassoon, Air Vice-Marshal Webb-Bowen, A.O.C., R.A.F., Middle East, and Air Commodore Longmore flew in three Fairey III.Fs to Khartum, stopping for the night at Wady Halfa. This part of the journey was made at an average height of 8,000 ft. owing to the bumpy atmosphere lower down. As they approached Khartum they were met and escorted by six Fairey III.Fs of No. 47 (Bombing) Squadron, stationed at Khartum. On the way back to Cairo they spent the night at Asswan.

THE LAST LAP.—Sir Philip Sassoon, Under-Secretary of State for Air, inspecting the Guard of Honour at the R.A.F. Base, Calshot, after landing from the Blackburn Iris on Nov. 13, at the end of his 17,000 mile tour of the R.A.F. Units overseas.

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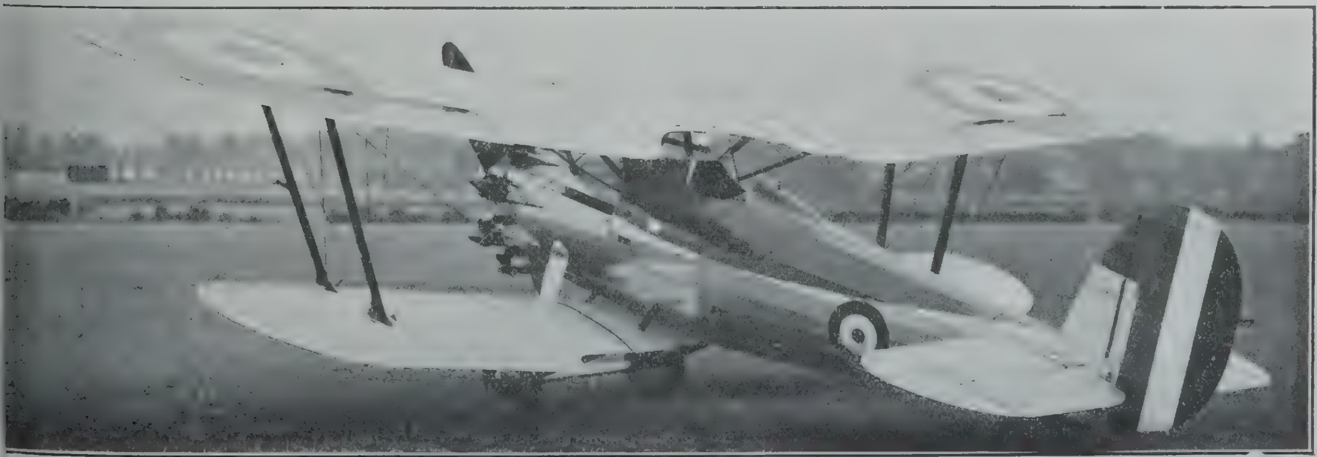


The journey to Baghdad on Oct. 10 was made in two of a flight of four Westland Wapiti machines which were being delivered to No. 84 (Bombing) Squadron at Shaibah, to replace their present equipment of D.H.9as. A stop was made at Amman for breakfast. The flying time for the 900 miles from Cairo to Baghdad was eight hours, at an average height of 5,000 ft. over the desert part of the route.

Sir Philip spent one day at Hinaidi visiting the three Squadrons, the Aircraft Depot and the other R.A.F. Units stationed there, and on Oct. 12 he flew in a Vickers Victoria to Basrah, where he re-embarked in the Iris. At Bushire they spent the night of Oct. 13 and the machine was refuelled.

On Oct. 14 a forced landing was made at Jask to repair a fracture in the housing of the cam-shaft ball-race of the starboard engine. The naval sloop *Crocus* was lying at Jask and some of her engineers helped in the repair work. Unfortunately copper rivets were used instead of steel and these gave way immediately after the start on the following morning. Another landing was made at Jask and the crew of the Iris manufactured some steel rivets and replaced the copper ones.

The Iris alighted in Karachi Harbour in the afternoon of Oct. 15 and Sir Philip inspected the R.A.F. Depot at Karachi on the following morning.

From Karachi Sir Philip Sassoon flew in a Handley Page Hinaidi to Jodhpur, across the Scind Desert. Sir Philip described the Scind desert as extremely bad country for forced-landings, but expressed the hope that Jodhpur, a picturesque city with an excellent aerodrome, would be one of the stopping places on the air route from London to Delhi.

The following day he flew to Delhi for lunch, in the Hinaidi, and went on the same afternoon in a D.H.9a to Ambala, where he inspected No. 28 (Army Co-operation) Squadron and dined in the Mess.

That night he travelled to Lahore by train, and the following morning he motored to Simla where he spent the night and the following day with the Viceroy and visited Headquarters of the R.A.F., India. He returned to Lahore by train during the night of Oct. 21 and visited the Aircraft Park the following morning.

From Lahore he flew to Peshawar in a Bristol Fighter, a machine which he described as being particularly comfortable. He stayed two nights at Peshawar and visited the Squadrons at Peshawar, Kohat, and Risalpur and flew up the Kyber Pass and along the frontier in a Bristol Fighter. On the second day he visited the Detached Flight of No. 60 (Bombing) Squadron at Miranshah, had lunch there and flew back to Quetta.

At Quetta he visited the Staff College and No. 31 (Army Co-operation) Squadron. The following day he flew from Quetta across the Bolam Pass and arrived at Karachi in the afternoon of Oct. 23. In three weeks and two days Sir Philip had visited every R.A.F. Unit overseas except those at Singapore, Mosul, Malta and the China Station.

On October 24 the party re-embarked in the Iris for the return journey. Again the Persian Gulf proved an unlucky spot for aviation. The engine of the Iris which had given trouble at Jask on the outward journey developed an oil leak and packed up in time for another forced landing to be made at Jask. Sir Philip Sassoon said that Jask is littered with the corpses of aircraft which had crashed there.

A new engine was sent out to Jask in a Hinaidi from Karachi, and Sir Philip continued his journey to Baghdad in the Hinaidi. From Baghdad he flew to Mosul to visit No. 6 (Army Co-operation) Squadron and the other R.A.F. Units there. He also flew along the Turkish frontier.

He returned to Cairo by air and rejoined the Iris at Abukir.

The Iris left Abukir on Nov. 7, and after stopping at Benghazi for the night, and at Sollum, to re-fuel flew to Malta. Here Sir Philip inspected the aircraft-carriers and the seaplane base. The next day they attempted to reach Naples, but were driven back to Malta by storms.

After re-fuelling at Malta they reached Naples in four hours, passing Mount Etna in full eruption. Thence they flew to Berre. From there to Ushant they met bad weather and thick fog and had to fly so low that they had to reel in their aerial. From Ushant to Southampton the weather was fine, and the Iris alighted at Calshot on Nov. 13.

Sir Philip Sassoon said that he had found the flying-boat an extremely comfortable form of transport. Altogether he had spent 240 hours in the air and had flown about 17,000 miles. He had not found the journey in any way exhausting.

The R.A.F. Units he had visited were keen, efficient and remarkably fit and happy.—C. M. MCA.

Sir John Salmond in Canada.

Air Marshal Sir John Salmond, K.C.B., C.M.G., C.V.O., D.S.O., A.D.C., who is temporarily detached from the Air Defence of Great Britain for duty with the Commonwealth Government in Australia, arrived in Montreal on Nov. 15, on his way home. He also visited Ottawa, where he conferred with officials of the Department of National Defence and of the Royal Canadian Air Force. He sailed for England on Nov. 16.

Transfers to the Reserve.

The following officers of the R.A.F., who are serving on short-service commissions, are due to transfer to the Reserve on the dates indicated on completion of their service on the active list :—

FLIGHT LIEUTENANTS.—*Jan.* 23, 1929 : E. G. Howell. *Jan.* 28, 1929 : C. E. Morris, O.B.E. *Feb.* 17, 1929 : R. F. Durrant, A.F.C. *Feb.* 23, 1929 : P. J. Hederman. *Mar.* 27, 1929 : A. Haines. *Mar.* 30, 1929 : W. E. G. Beauforte-Greenwood.

FLYING OFFICERS.—*Jan.* 3, 1929 : W. J. Brett, R. W. Holden, H. T. Messenger, F. E. North, G. M. Pitts Tucker, J. E. Preston, F. T. Stacey. *Jan.* 14, 1929 : E. C. Boucher, S. E. Bulloch, J. E. Clayton, R. K. Coupland, T. H. Finney, E. H. Fielden, P. P. Grey, G. W. P. Irwin, J. C. Marey, J. F. Nicholas, P. E. Nicholl, V. W. Soltau, F. F. Wilkinson. *Jan.* 23, 1929 : M. J. Du Cray. *Jan.* 31, 1929 : G. R. A. Pallin. *Feb.* 10, 1929 : J. Summers. *Feb.* 17, 1929 : G. W. R. Russell. *Feb.* 20, 1929 : H. C. Lee. *Mar.* 15, 1929 : W. D. Baxter, F. H. S. David, E. A. H. Fisher, R. A. Ford, A. N. Francombe, A. L. Macmillan, A. D. MacDowall, A. W. G. Martin, W. V. R. Nicholl, C. S. Staniland, N. A. West. *Mar.* 18, 1929 : R. L. Bateman.

The R.A.F. in Parliament.

THE AIRCRAFT STRENGTH OF THE R.A.F.

In the House of Commons on Nov. 14, in reply to a question by Mr. Beckett, the Secretary of State for Air stated that the number of airships and aeroplanes under the control of the Government on Nov. 1, 1912, was 4 airships and some 56 other aircraft. On Nov. 1, 1928, the strength of the R.A.F. was approximately 780 first-line aircraft and, in addition, two airships were under construction but were not yet in commission.

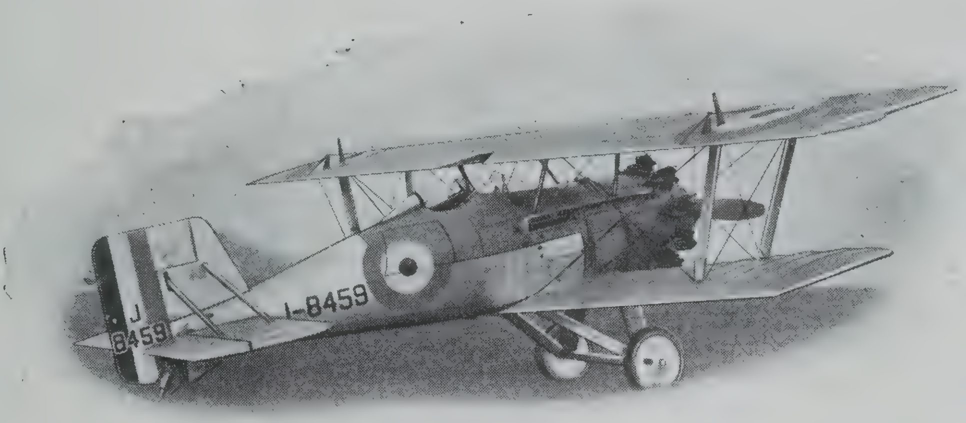
FLYING-BOATS.

In the House of Commons on Nov. 14, in reply to a question by Mr. Day, the Secretary of State for Air said that no decision had been made regarding the number of floating docks which would be constructed for the accommodation of flying-boats.

THE SCHNEIDER TROPHY TEAM.

In the House of Commons on Nov. 14, in reply to a question by Mr. Day, the Secretary of State for Air said that he was not ready to make any announcement on the subject of the appointment of the

NIL NOS TREMEFACIT.—No. 55 (Bombing) Squadron, R.A.F., having summer breakfast during an expedition to inspect landing grounds in the southern desert, 'Iraq. No. 55 (Bomb ing) Squadron is stationed at Hinaid and commanded by Sq. Ldr. A. H Peck, D.S.O., M.C. The names in the group are, from left to right, standing Sq. Ldr. Peck, sitting, Flg. Off. G. W Hayes (late No. 100 Sqdn.), Flt. Lt V. S. Parker (late No. 56 Sqdn.), Flg Off. A. F. Merritt (late No. 12 Sqdn.) Plt. Off. E. V. L'E. Feasey (late No. F.T.S., Egypt), Flt. Lt. A. Leach, M.C (late Martlesham). The machine is D.H.9a (Bristol Jupiter engine).



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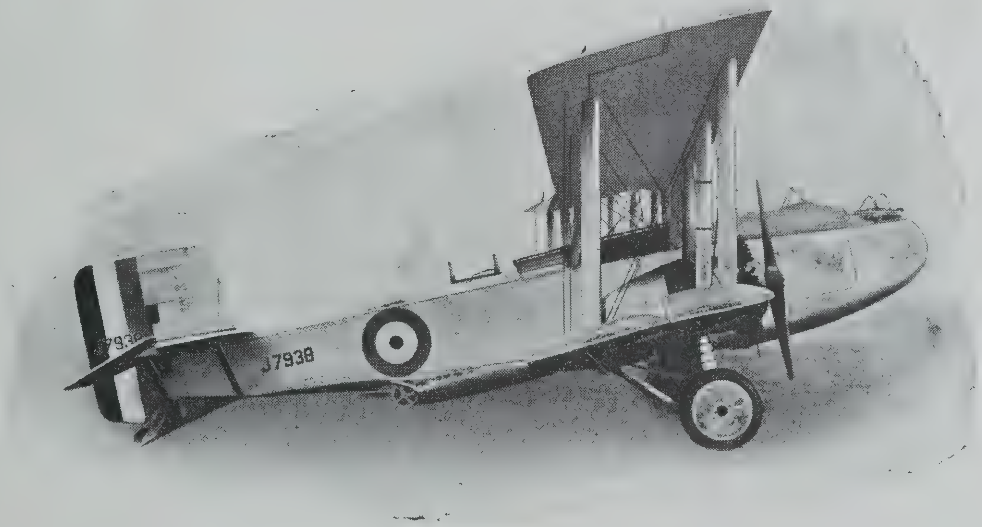

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responsible executive officer to be in charge of the Schneider Trophy team, 1929. With regard to the pilots, selections had not yet been completed. Certain pilots had been put under training on high-speed machines for the purpose of ascertaining their capabilities.

FLYING ACCIDENTS.

In the House of Commons on Nov. 15, in reply to a question by Sir R. Thomas, the Secretary of State for Air said that the number of accidents, and still more the number of deaths through flying accidents, were bound to fluctuate from year to year. The figure for this year, while in excess of that for the corresponding period, 1927, was below that for the corresponding period of 1926. He added that the size of the Force and, consequently the amount of flying done, was still increasing year by year.

No. 55 Squadron, R.F.C. and R.A.F. Reunion.

The tenth annual reunion dinner of No. 55 Squadron, R.F.C. and R.A.F., will be held at the Trocadero Restaurant on Dec. 1 at 7.30 for 8 p.m.

Several of the original members of the Squadron have promised to attend the dinner, including Wing Cdr. J. E. A. Baldwin, D.S.O.

The Committee are anxious to make this tenth reunion a special success and to beat the previous record attendance of 36.

Application for tickets should be made as soon as possible to L. B. Goodyear, 2a, Spencer Road, South Croydon, Surrey.

An H.M.S. Engadine Reunion.

The 10th Annual Reunion of the ship's company of H.M.S. *Engadine* was held on Nov. 10 at the Adelphi Hotel, Strand.

H.M.S. *Engadine* was the famous aircraft-carrier whose exploits at Cuxhavn, at Jutland, and afterwards are matters of common history.

This annual reunion of the *Engadine* is the only one of its kind among the many units of the Navy. At the reunion there were present Active Service officers and men of H.M. Navy and the R.N.R., as well as Reservists and the old "temporary ratings."

If any readers of The Aeroplane served in H.M.S. *Engadine* and would like to have details of future reunions they should write to Arthur B. Ward, "Maplehurst," Burbage Road, Dulwich Village, London, S.E.21.

SPORT IN THE R.A.F.

The Wakefield Boxing Tournament.

The annual R.A.F. novices' boxing tournament was held at Henlow on Nov. 7 and 8. The team results were as follows :—

Officers.

Digby (holders), 25; Old Sarum, 23; Sealand, 14; Henlow, 11; Worthydown, 7; Farnborough, 6.

Airmen (Open).

Halton "B," 30; Henlow (holders), 29; Manston, 28; Halton "A," 27; Uxbridge, 16; Netheravon, 13.

Airmen (Junior Competition).

Eastchurch, 41; Leuchars, 33; Sealand, 32; Grantham, 25; Gosport, 24; Calshot, 20; Northolt, 20; Andover, 16; Martlesham Heath, 15; Worthydown, 13; Old Sarum, 9.

The individual results were as follows :—

Officers' Competition.

Feather-weight.—Flg. Off. Vandyke (Digby) beat Plt. Off. Munro-Higgs (Old Sarum) on points.

Light-weight.—Plt. Off. Dickson (Old Sarum) beat Plt. Off. Gibson (Sealand) on points.

Welter-weight.—Plt. Off. Bainbridge (Digby) beat Plt. Off. Thompson in third round.

Middle-weight.—Flg. Off. Johnstone (Old Sarum) beat Flg. Off. Streatfield (Sealand) in first round.

Heavy-weight.—Plt. Off. Binley (Digby) w.o., Flg. Off. Porrit (Sealand) unable to box owing to injury.

Airmen's Junior Competition.

Fly-weight.—AC. Rook (Leuchars) beat AC. Long (Sealand) on points.

Bantam-weight.—AC. Davey (Calshot) beat AC. Binns (Sealand) on points.

Feather-weight.—AC. Few (Eastchurch) beat AC. Lawson (Calshot) on points.

Light-weight.—AC. Johnstone (Eastchurch) beat AC. Welsh (Gosport) on points.

Welter-weight.—AC. Wossell (Leuchars) beat Cpl. Turner (Eastchurch) on points.

Middle-weight.—AC. Collins (Sealand) beat AC. Ridout (Northolt) in first round.

Light Heavy-weight.—AC. Bartlett (Eastchurch) beat AC. Mather (Grantham) in the first round.

Heavy-weight.—AC. How (Gosport) beat AC. Kidd (Leuchars) on points.

Airmen's Open Competition.

Fly-weight.—L-AC. Dossett (Henlow) beat AA. Booth (Halton "B") on points.

Bantam-weight.—AC. Dengle (Uxbridge) beat AA. Paget (Halton "B") on points.

Feather-weight.—AC. Matthews (Halton "A") beat AA. Simpson (Halton "B").

Light-weight.—AC. Varley (Manston) beat AC. Fancy (Netheravon) in second round; referee stopped contest.

Welter-weight.—AA. Williams (Halton "B") beat AC. Collishaw (Manston) on points.

Middle-weight.—AA. Mustey (Halton "A") beat AA. Bradshaw (Halton "B") in second round.

Light Heavy-weight.—Cpl. Northwood (Henlow) beat AC. Richardson (Manston) on points.

Heavy-weight.—AA. Wooley (Halton "A") beat L-AC. Miller (Henlow) on points.

Special Six-round Contest.

At Bantam-weight.—Drummer Bennett (2nd East Lancashire Regt.) beat L-AC. Williamson (R.A.F.) on points.

Rugby Football.

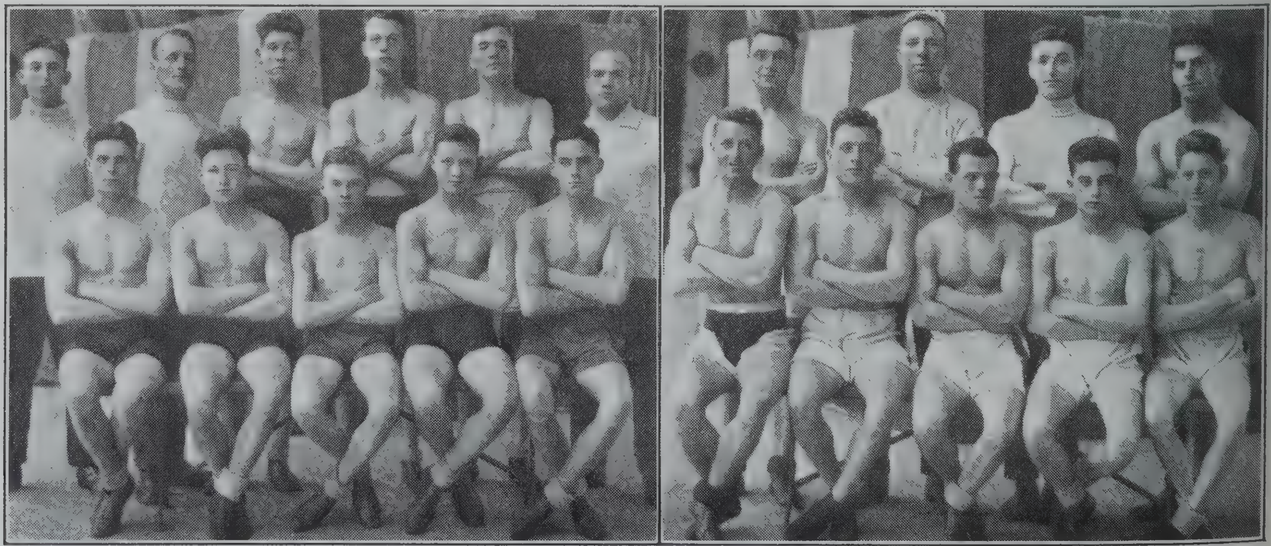
Cranwell versus Woolwich.—The R.A.F. Cadet College, Cranwell, beat the Royal Military Academy at Woolwich on Nov. 17 by three goals and three tries (24 points) to three goals (15 points). Thus have Cranwell brought off the double event of beating Sandhurst and Woolwich in one year for the first time in the history of the Cadet College.

In connection with the account of the Sandhurst match in last week's Aeroplane the statement that Sandhurst were without one of their team should not be misinterpreted. Sandhurst fielded 15 players, but one of them was not one of their regular team.

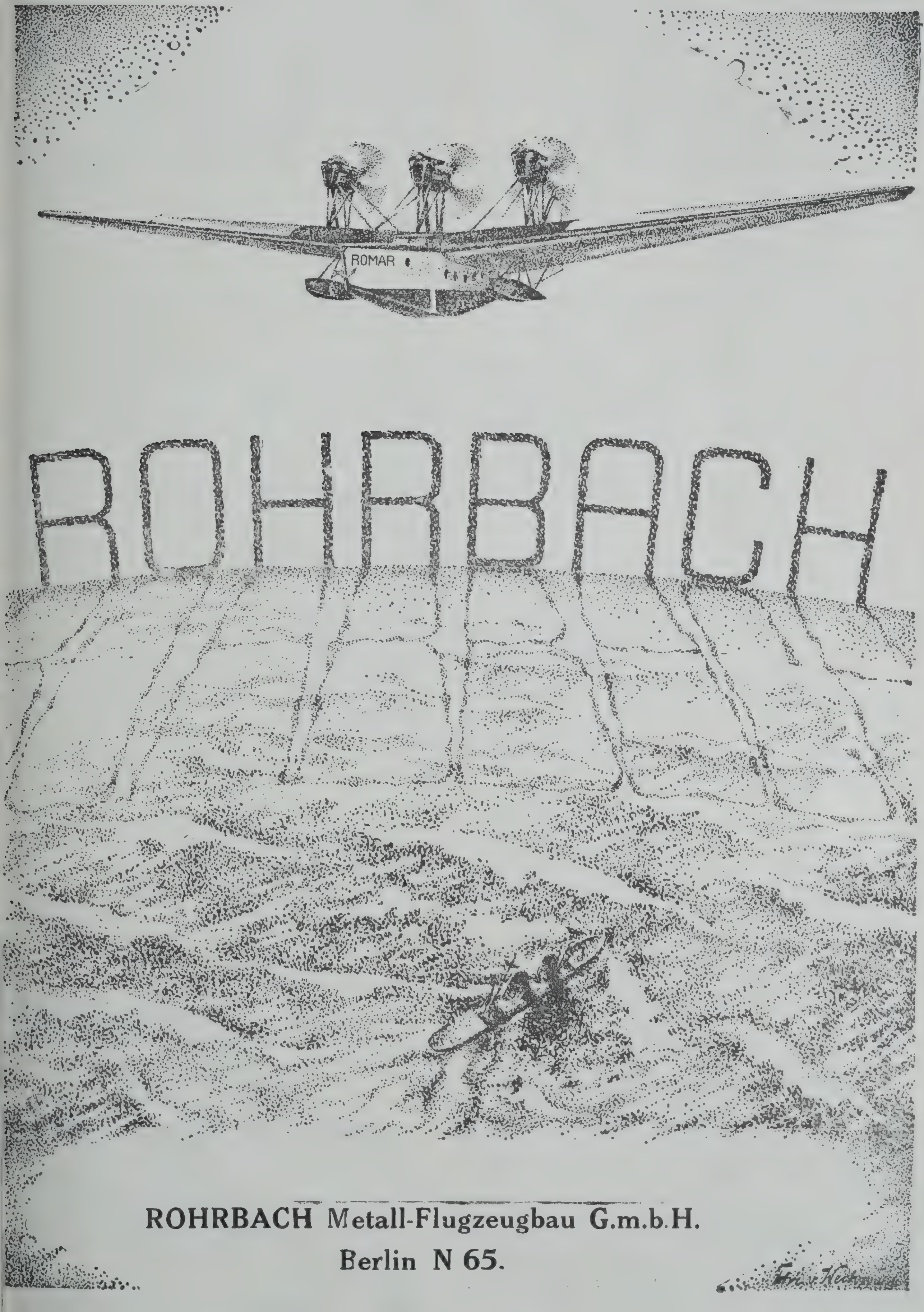
The Cranwell vistory was a triumph of fitness, keenness, hard practice and first-class Rugger tactics. Every man in the team shared in the great endeavour. Their staying powers were particularly demonstrated in their great recovery in the last ten minutes of the game when, after Woolwich had scored three goals in ten minutes, Cranwell, playing up the hill, got the game back into their own hand and the play into Woolwich territory.

Cranwell started down the hill but against the wind and sun and within two minutes of the kick-off Coote had slipped through and scored a try. Charles converted. After ten minutes of brisk play in which the Cranwell forwards were conspicuous both for their shoving and heeling in the scrums and for their work in the loose McKechnie got over far out from a scrum near the Woolwich line. The goal kick, from a difficult angle and into a stiff breeze, went wide.

Cranwell kept up the pressure and were right on the ball all the



THE NOVICES.—The winners of the "Wakefield" Novices' Boxing Championships. On the left is the Halton "B" team which won the Open Championship (Airmen) with 30 points, and on the right is the Eastchurch team which won the Junior Championship (Airmen) with 41 points.



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time. Their threequarters came into action and Baines, hemmed in, sold a dummy and gained 20 yards before passing to Murray, who was smothered near the line. From the scrum a reverse pass between the Cranwell halves was followed by an attempt to drop a goal by Bader. This fell short, blown back by the wind, and the Shop full-back cleared with a colossal kick to touch. A bout of good handling and straight running from the line-out brought the game onto the Woolwich line again and Bader, handing-off three opponents, scored. The goal kick fell short.

A dangerous attack by the Shop broke down with a forward pass. Half an hour from the start McKechnie was over again for Cranwell's fourth try. Again the kick against the wind fell short. Two minutes later dash, enterprise, and the ability to bring off the unexpected, took Bader over near the posts. Coote converted.

A vigorous attack by Woolwich was thwarted by Henzell, the Cranwell full-back, who gathered near the goal and, swerving past the attack, gained thirty yards with his run and a fine screw kick into touch. Prolonged scrummaging near the Woolwich line ended with a long kick to safety by the Shop.

The wind had fallen in the second half and Cranwell were faced with the slope of the ground. Undeterred, however, they took another goal off the Shop ten minutes from the re-start. This was scored by Elsmie and converted by Charles.

Then the Shop attacked in earnest and for some time the Cranwell defence was tested to its uttermost, only to prove that the team was as tough in defence as it was forceful in attack. Ten minutes' pressure however defeated them and Wilkinson, a powerful wing threequarter, broke through and touched down behind the posts. Simpson converted.

Woolwich attacked again with renewed vigour, each threequarter getting the ball away with that fraction of time before the smothering tackling of the Cranwell backs brought him down. A beautiful kick by Bader held them up once, but they used the short punt ahead and scored a second goal in six minutes. Fenton got the try and Godley converted.

Cranwell rallied well and drove the Shop over their line to touch down, but another five minutes, the fiercest five minutes of the game, got Barff over between the Cranwell posts. Simpson converted.

There were ten minutes to go and the astonishing fitness and stamina of the Cranwell team not only held up the Woolwich team but drove them steadily back. Cranwell made one splendid breakaway, but Coote, with a clear field in front of him, slipped and fell. There was no more scoring, but for the last five minutes of that epic struggle Cranwell were on top.

The Cranwell team were: *Full back*, Flt. Cdt. Henzell. *Threequarters*, Flt. Cdts. Murray, Baines, Coote, Walker. *Halves*, Flt. Cdts. Elsmie and Bader. *Forwards*, Flt. Cdts. Letchworth (Captain), Charles, Hood, McKechnie, Cole, Douglas-Hamilton, Eayres and Wallace.

A pleasing demonstration of the *Esprit de Cranwell* was given by the crowd of Old Cranwellians, some of them last year's team, who had come from their Units all over the country to cheer Cranwell from the touch-line.—C. M. MCA.

Boxing in Palestine.

A Boxing Tournament was held at the R.A.F. Station, Ramleh, on Oct. 9, on the occasion of the visit of H.M.S. *Royal Oak* and *Valiant*. The three Services were well represented in a packed house.

The boxing was between a team representing the R.A.F. Command, Transjordan and Palestine, and a team representing H.M. Ships *Royal Oak* and *Valiant*. The R.N. won by 27 points to 20.

(1) *A.B. Francis, H.M.S. "Valiant," v. AC.1. Price, R.A.F.*—A lively bantam-weight contest. The seaman was the stronger. Price fought well, but in spite of his good efforts was laid low in the second round.

(2) *A.B. Dobson, H.M.S. "Royal Oak," v. L-AC. Reynolds, R.A.F.*—Reynolds left himself open to some hard free punches. He tired early and through weakness received a knock-out before the first two minutes were up.

(3) *Tel. Gould, H.M.S. "Valiant," v. Cpl. Cardwell, R.A.F.*—Gould found himself opposed to a very clever boxer, who, after an interesting first round, took the opportunity of landing a severe body blow which disposed of the Telegraphist.

(4) *A.B. Phillips, H.M.S. "Royal Oak," v. L-AC. Gilmore, R.A.F.*—An interesting fight between two welters of vastly different style and physique. At the end of three rounds an extra round was ordered, in which Gilmore seemed to take a new lease of life and easily outclassed his opponent and gained the decision.

(5) *L.S. Mitchell, H.M.S. "Valiant," v. Sign. Hancock, R.C. of S.*—A good hard fight between two light-weights who were so well matched that it was only after an extra round that Mitchell was awarded the verdict.

(6) *O.S. Atkey, H.M.S. "Valiant," v. L-AC. Harris, R.A.F.*—One of the most thrilling contests of the evening. The R.A.F. man first led the attack with such a terrific shower of blows that it seemed the contest would be over in a few seconds, but the seaman weathered the storm and proceeded to mix it also. Then followed three rounds of hard hitting and it says much for the physical condition of both men that an early knock-out on either side did not materialise. In the end it was seen that Atkey was the better man and though much severe punishment was taken on both sides, he emerged a winner on points.

(7) *A.B. Baldwin, H.M.S. "Royal Oak," v. L-AC. Davey, R.A.F.*—Davey was outclassed by a more experienced boxer. Although knocked down for a count of eight three times in one round he showed great determination and continued to fight until every ounce of strength was taken out of him and he was knocked out. An exemplary effort that gained him the best loser's prize.

(8) *A.B. Harvey, H.M.S. "Royal Oak," v. Emil (Macabee Sporting Club).*—Harvey was the winner on points.

(9) *A.B. Nicholson, H.M.S. "Royal Oak," v. L-AC. Rose, R.A.F.*—Rose fought gamely to the end and lost on points.

(10) *Tel. Gramm, H.M.S. "Royal Oak," v. L-AC. Plume, R.A.F.*—A fast contest which ended in round two. Plume received such severe body blows that he took the count of nine. He rose to his feet but through pain was unable to continue.

(11) *Stoker Rose, H.M.S. "Valiant," v. Sign. Harthill, R.C. of S.*—Two very plucky bantams in a fast three rounds; they were well matched. The Stoker gained the decision.

(12) *O.S. Warnes, H.M.S. "Valiant," v. L/Cpl. Hancock, R.C. of S.*—On an extra round being ordered Hancock was the more aggressive and took the verdict.

(13) *O.S. Percival, H.M.S. "Royal Oak," v. Sign. Ellison, R.C. of S.*—Percival was the quicker and outclassed his opponent, gaining the verdict on points.

(14) *O.S. James, H.M.S. "Royal Oak," v. Sign. Steel, R.C. of S.*—Two hard hitting welters who fought a very close contest for three rounds, with James prevailing in the extra round.

(15) *Marine Allen, H.M.S. "Valiant," v. L-AC. Warner, R.A.F.*—Warner boxed perfectly and outclassed his man for the best part of three rounds, without, however, administering much punishment. Warner had made the going but Allen was strong and wary, and watching his chance floored his man, when there were only a few seconds to go.

(16) *A.B. Parker, H.M.S. "Royal Oak," v. Cpl. Cardwell, R.A.F.*—This was Cardwell's second fight of the evening. He boxed in his usual clever and cool style, knocking out his opponent in the first round with a lightning body punch.

The officials were :—

Referees and Judges: Cdr. Hammick, R.N.; Maj. Harrington, Brit. Sect. Pal. Police; Lt.-Cdr. Reynolds, R.N.; Flt. Lt. R. Davy, R.A.F.; Flt. Lt. H. E. Walker, M.C., D.F.C., R.A.F.; and Flg. Off. Cole, R.A.F. *Timekeeper*: Mr. Vaughan-Starr.

The prizes were presented by Rear-Admiral Munro-Kerr, who complimented the competitors on the high standard of boxing, which prevailed throughout the evening.

He pointed out that the combined strength of H.M.S. *Valiant* and *Royal Oak* was about 2,500 men in comparison with only 350 of the R.A.F. Command and accordingly congratulated the R.A.F. on the astonishingly good performance.

Aquatic Sport in Egypt.

The United Aquatic Sports of No. 4 F.T.S., Abu Sueir, were held on Sept. 26 by kind permission of Wing Cdr. F. K. Haskins, D.S.C. There was a large crowd of spectators.

A notable feature was the wonderful swimming of Flg. Off. A. P. K. Hattersley, and to see him full out in the open relay convinced one that he was justified in ordering plain vans to remove his numerous prizes after the sports were over.

The Royal Engineers were represented and the afternoon's entertainment was completed by a Polo Match, Royal Engineers v. No. 4 F.T.S., in which the former ran out worthy winners by 3 goals to 2.

The results of the principal events were as follows :—

25 *Yards Free Style.*—(1) Flg. Off. A. P. K. Hattersley (14 sec.); (2) L-AC. Leer; (3) L-AC. Burt.

Diving Competition.—(1) Plt. Off. R. C. T. Pearse; (2) Flg. Off. A. P. K. Hattersley; (3) L-AC. Jones.

50 *Yards Free Style.*—(1) Flg. Off. A. P. K. Hattersley (32 1/5 sec.); (2) L-AC. Leer. 50 *Yards Breast and Back Stroke.*—(1) L-AC. Rous (45½ sec.); (2) L-AC. Amphlett.

Open Relay.—(1) No. 4 F.T.S., Abu Sueir; (2) No. 14 Sqdn., Amman; (3) Royal Engineers.

Serjeants' Sealed Handicap.—(1) Sjt. Rawlinson; (2) Sjt. Dixon. 100 *Yards Free Style.*—(1) Flg. Off. A. P. K. Hattersley (78 sec.); (2) L-AC. Clark.

Plunging.—(1) Plt. Off. G. A. E. Harkness (41 ft. 8 in.); (2) Flg. Off. A. P. K. Hattersley (41 ft. 2 in.). *Open* 100 *Yards Free Style.*—(1) Cpl. Walley (78 sec.); (2) Spr. Lawson.

Relay, Officers, Airmen, Serjeants.—(1) Officers; (2) Airmen; (3) Serjeants.

Water Polo.—Royal Engineers v. No. 4 F.T.S.—Royal Engineers, 3, winners; No. 4 F.T.S., 2.

The Station Band was in attendance and played at intervals during the whole afternoon.

The Judges were as follows: Wing Cdr. F. A. Haskins, D.S.C., Flt. Lt. C. E. Barraclough, Flg. Off. C. A. C. Coaker, Plt. Off F. L. Truman. Starter: Mr. L. Brown. M.C.: S-M.1. A. W. Stollery.

DEVIL WORSHIP

"Travel, in the younger sort, is a part of education;
In the elder, a part of experience."
—*(Francis Bacon.)*

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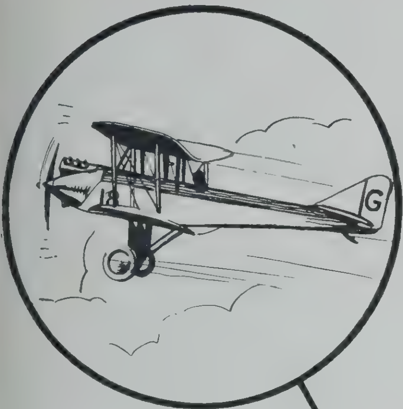

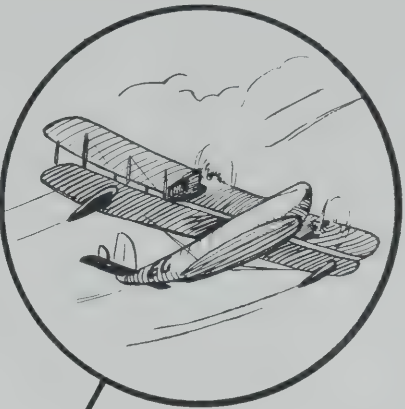

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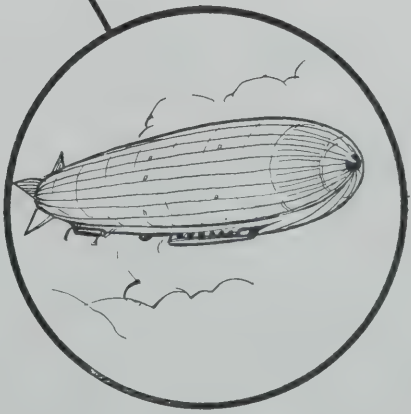

AERIAL SURVEY IN CANADA IN 1928.

Civil flying operations are rapidly increasing in Canada year by year, and one of the fields in which the most marked advance has been made is that of aerial surveying. The preliminary report for 1928 of the aerial photographic work for survey purposes done by the Topographical Survey, Department of the Interior, in co-operation with the Royal Canadian Air Force, shows in round numbers a total of 53,000 square miles of territory covered. Of this 22,000 square miles was by vertical photography and 31,000 by oblique.

The operations extended into eight of the nine provinces of Canada for such various purposes as geological mapping, water-power investigation, determination of pulpwood and lumber resources, the preparation of topographical maps, and experimental work. The demand for mapping is very urgent, and, for areas beyond the limits of present settlement, the oblique aerial photograph fits in well with present needs when maps on the scale of four or more miles to an inch are required. When greater detail and a larger scale in the resulting map sheets are necessary the vertical method is employed.

Of the 31,000 square miles covered in 1928 by oblique photographs 9,500 were in the vicinity of Kenora, Ontario; 14,600 in the valley of the Churchill river in Saskatchewan and Manitoba; and 4,400 in Alberta, north of lake Athabasca. As a result of this work several new and important map sheets of the National Topographic series on the scale of four miles to an inch will be issued by the Survey. Vertical aerial operations varied in size from the photographing of an area of 3,000 square miles to a matter of a few square miles only.

There were fourteen operations covering individual areas of a greater extent than 100 square miles each and about twenty-five operations of lesser size. By provinces the amount of vertical aerial work carried on to date during the season was as follows: Nova Scotia, 2,090 square miles; New Brunswick, 870; Quebec, 8,470; Ontario, 5,000; Manitoba, 1,680; and British Columbia, 3,890 square miles.

Work was done for the departments of Public Works, Mines, National Defence, and for the following branches of the Department of the Interior: Forestry, National Parks, the Dominion Observatories, and Water Power and Reclamation.

One of the striking features of the season's operations was the taking of vertical aerial photographs of the Lac Seul area and their use in connection with the creation of a reservoir to regulate the flow of waters in the Winnipeg and English rivers, for the development of power. This is another instance of the value of aerial photographs in the furthering of engineering projects in which large areas are involved.

By ordinary methods a survey of the Lac Seul area to determine the extent of country which would be affected by the project would have entailed some two or three years' work. With the aid of vertical aerial photographs taken during the past summer the whole area was mapped in a little over three months and the actual construction of the immense storage dam is now being proceeded with.

FAIRCHILDREN IN CANADA.

Fairchild Aviation Ltd., who have hitherto been having Fairchild aircraft built under contract in Canada, have now arranged to build their own factory. All Fairchild types will be produced there, from the new small sport and training low-wing monoplane up to multi-engined transport machines. Construction will begin within the next few weeks and the first output is expected in time for the opening of the waterways in the Spring.

Arrangements are also being made to expand the transport branch of the Fairchild interests. During the Summer the Fairchild people have been doing a large business carrying the men and provisions into the new Chibougamou mining field in Quebec.

When the success of the Fairchild activities in the past is considered there is no doubt that among the immense developments of air transport in Canada the firm will take a place in the very front rank. Mr. Ellwood Wilson, the President of the Canadian Fairchild firm was one of the first big business men in Canada to take an active interest in aviation, and the firm is now getting value for all his experience in those early days. Mr. K. F. Saunders, who is in charge of the flying operations, after a distinguished career in the Royal Air Force and considerable experience of flying under Arctic conditions in Sweden, has achieved great success in all the firm's flying activities since he came back to Canada. And of late he has added a number of good and trustworthy British pilots to the flying personnel. So the firm is in a particularly good position for next year's business.

A STEP FORWARD.

Rumour is very busy in the Aircraft Industry at the present moment, and indicates how active aeronautical progress is at the moment. Such rumours as reach this office are generally based on fairly good information. Consequently one has little hesitation in giving publicity to a rumour which has come from several sources about a particularly interesting development in wing structure. Possibly the rumour may be confirmed by consulting files at the Patent Office.

The statement is that an entirely new system of internal bracing of wings has been produced which will enable a full cantilever monoplane to be built lighter than any existing biplane or monoplane of equal area and strength. All one can gather is that the wing depends on a single spar and on internal tension bracing.

Such a structure would obviously be of importance in big passenger-carrying machines. Naturally the saving in weight would mean extra petrol or extra passengers or freight. Also, if a cantilever wing can be built for less weight than a biplane structure there is no reason why a cantilever biplane should not be built to weigh considerably less than existing biplanes and with very much reduced head-resistance. The rumour has it that this new wing has been built on the Clyde and that it has stood up to mechanical and theoretical tests.

AN INTERESTING COMBINATION.

Among the various interesting moves which are happening in the Aircraft Industry at present is the combination of Mr. A. V. Roe and Mr. S. E. Saunders. The precise form of the alliance is not yet announced, but one gathers that Mr Roe has taken an important interest in the Saunders firm and is to be a director of S. E. Saunders Ltd.

For a long time Mr. A. V. Roe has had an ambition to build a really big flying-boat, so perhaps this has something to do with the combination of interests. Mr. Saunders is the pioneer builder of flying-boat hulls in this country. The hull of the Sopwith Bat-boat of 1911 was a development of his experience with racing motor-boats in previous years. He has had much experience of building flying-boats since then. And Mr. A. V. Roe's experience of aircraft building dates back to the earliest days of aviation. The result of their combined activities will be awaited with much interest.

RELIABILITY IN THE STATES.

Mr. Lester D. Seymour, Assistant General Manager of National Air Transport Inc. stated recently that N.A.T. machines have flown 3,306,207 miles without the slightest injury of any kind to a passenger, or the loss of a single ounce of mail, or express, since the beginning of operations on May 12, 1926.

This tremendous mileage, a distance equal to more than 132 times around the earth at the equator, was flown on regular N.A.T. routes, over half of it during the night, through all kinds of weather, a remarkable tribute to the safety and reliability of modern aviation.

'In this flying,' said Mr. Seymour, 'there was no stunt flying of any nature whatsoever. Every mile was made over either our 725 mile Chicago—New York or our 995 mile Chicago—Dallas regular routes, carrying hundreds of passengers and tons of mail and express. Our pilots and ground crews are responsible for this fine record, of which we are justly proud. They are imbued with the same spirit which their predecessors of the pony express days cherished so valiantly. During September, our Liberty-motored ships flew 175,000 miles without a single forced landing on account of mechanical causes.'

AUSTRALIA—ENGLAND.

On Nov. 16 Capt. Frank Hurley and Messrs. Moir and Owen, who left Sydney on Oct. 20 to fly to England in the Ryan monoplane "Spirit of Australia," were forced to land at Bundar Abbas owing to dust storms.

The local Persian authorities have refused to allow them to proceed as their permit is for landing at Bushire only.

THE IRONY OF FATE.

On Sept. 29 an Italian flying-boat which was returning to Italy from Spitzbergen, where it had been engaged in the search for Capt. Amundsen, Commandant Guilbaud and the lost members of the crew of the *Italia,* struck a high-power cable near Valence and fell into the Rhone.

An attempt was being made to alight on the Rhone either through bad weather or engine trouble when the machine came into contact with the high tension cable.

Major Pinzo, Lieut. Crocio and an N.C.O. fell into the river and their bodies were carried away by the strong current and so far have not been recovered. Two mechanics were rescued and are in hospital from minor injuries.

To be killed in such a way after braving the perils of Arctic flying in search of men in whom they could have had no National or personal interest is surely one of the most ironic tragedies of Aviation.

HAWKER AIRCRAFT

"Aeroplane" Photograph.

The Hawker "Hawfinch" is a new single-seater machine for day or night fighting, representing the latest developments in this class. It incorporates the Hawker patent system of metal construction, thereby facilitating production and reducing maintenance problems.

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THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]

Aerodrome: Stag Lane Aerodrome, Edgware, Middlesex.

Instructors: V. H. Baker, F. R. Matthews. *Ground Engineer*: C. Humphreys. *Aircraft*: 3 (NY, XS and MP).

Report for week ending Nov 18.

Flying Time: 37 hr. 5 min.; *Instruction*: 28 (21 hr. 5 min.); *Soloists*: 22 (16 hr.).

Notes.—Accommodation at Stag Lane.—The following Committee has been appointed to take in hand the fitting up of the members' rooms: Major K. M. Beaumont, D.S.O., Capt. A. G. Lamplugh, Messrs. T. Elder Hearn, J. W. P. Chalmers, and R. C. Presland.

Christmas Raffle.—The raffle of the D.H. Moth (Cirrus Mark I), complete with C. of A., will be made in December. Individual tickets at 10s. each or books containing ten tickets can be obtained on application to the Club at 3, Clifford Street, London, W.1, or Stag Lane Aerodrome. It is hoped that members will assist in the disposal of the tickets to their friends.

The Lancashire Aero Club.

[Sec.: F. W. Atherton, Woodford Aerodrome, Cheshire.]

Report for week ending Nov. 10.

Chief Instructor: D. E. Hall. *Voluntary Asst. Instructors*: J. C. Cantrill and J. J. Scholes. *Ground Engineers*: Bartram and Chapman. *Aircraft*: 2 (XD and PH).

Flying Time: 14 hr. 55 min.; *Instruction*: 14 (5 hr. 5 min.); *Soloists (under instruction)*: 1 (35 min.); *"A" Pilots*: 14 (8 hr. 20 min.); *Passengers*: 4 (40 min.); *Tests*: 50 min.

Report for week ending Nov. 17.

Chief Instructor: D. E. Hall. *Voluntary Asst. Instructors*: J. C. Cantrill and J. J. Scholes. *Ground Engineers*: Bartram and Chapman. *Aircraft*: 2 (XD and PH).

Flying Time: 5 hr. 35 min.; *Instruction*: 6 (2 hr. 30 min.); *"A" Pilots*: 7 (1 hr. 35 min.); *Passengers*: 2 (40 min.); *Tests*: 50 min.

Notes.—A week of beautiful weather marred only from a flying point of view by continuous rain and gales of wind.

MQ came back into the fold on Saturday in time to be tested. Her new airscrew seems to suit her and she is flying remarkably well for her age. QL also came back at the week-end fitted with the new Avian undercarriage, but has not yet flown. The performance of the new undercarriage will be watched with interest. The wheel track, although not as wide as that of the Hinkler undercarriage, is wider than the original solid axle type. It is also considerably higher and the increased angle of incidence on the main planes in the taxiing position should result in a quicker pull-up after landing.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending Nov. 18.

Instructor: G. M. S. Kemp. *Ground Engineer*: K. C. Brown. *Asst.*: J. Tait. *Aircraft*: 3 (PT, QV and LX).

Flying Time: 18 hr. 55 min.; *Instruction*: 7 (12 hr. 30 min.); *"A" Pilots*: 10 (5 hr. 5 min.); *Passengers*: 2 (50 min.); *Tests*: 3 (30 min.).

Notes.—The Club's fifth annual dance was held in Newcastle last Friday and we were pleased to see a goodly number of members and friends present. Mr. Billy Merson, who was appearing in the town, paid us a visit, and his songs were much appreciated.

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. J. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Nov. 17.

Instructor: G. R. Beck. *Ground Engineer*: R. Morris. *Aircraft*: 2 (RF and TB).

Flying Time: 2 hr. 55 min.; *Instruction*: 1 (35 min.); *"A" Pilots*: 3 (1 hr. 25 min.); *Passengers*: 1 (40 min.); *Tests*: 3 (15 min.).

Notes.—This week's hours tell their own tale! We regret to announce that Col. Walker was taken ill very suddenly on Thursday last and has been removed to a Nursing Home. We all join in wishing him a speedy recovery.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Aerodrome: Castle Bromwich, Birmingham.

Report for week ending Nov. 10.

Instructors: Flt. Lt. T. Rose, D.F.C., and W. H. Sutcliffe. *Engineer*: W. J. Halland. *Asst.-Engineer*: G. Rees. *Aircraft*: 3 (LT LW and XT).

Flying Time: 19 hr. 26 min.; *Instruction*: 11 (5 hr. 50 min.) *Soloists*: 14 (7 hr. 20 min.); *Passengers*: 6 (4 hr. 45 min.); *Test*: 1 hr 31 min.

Notes.—Mr. M. Blakeway made a successful first solo.

On Friday Flt. Lt. Rose, accompanied by Mr. A. G. Hurrell, flew XT to Stag Lane. Later in the day Flt. Lt. Rose flew to Brooklands for the Household Brigade At Home and on Saturday returned t Castle Bromwich with Mr. W. L. Handley as passenger.

Report for week ending Nov. 17.

Instructors: Flt. Lt. T. Rose, D.F.C., and W. H. Sutcliffe. *Engineer*: W. J. Halland. *Asst.-Engineer*: G. Rees. *Aircraft*: 3 (LT LW and XT).

Flying Time: 11 hr. 4 min.; *Instruction*: 5 (4 hr. 35 min.) *Soloists*: 12 (5 hr. 15 min.); *Passengers*: 2 (35 min.); *Test*: 8 (3 min.).

Notes.—Very bad weather has been responsible for the reduced flying time, which is the lowest since April.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, Hamble, Hants.]

Aerodrome: Southampton Aerodrome, Hamble.

Report for week ending Nov. 11.

Instructors: Flt. Lt. F. A. Swoffer, M.B.E., and W. H. Dudley. *Ground Engineers*: E. Lenny and J. Elliott. *Aircraft*: 2 (OI and OH)

Flying Time: 39 hr. 35 min.; *Instruction*: 29 (25 hr. 15 min.); *Soloists*: 5 (5 hr. 25 min.); *"A" Pilots*: 12 (6 hr. 20 min.); *Passengers*: 2 (1 hr. 15 min.); *Test*: 10 (2 hr. 35 min.).

Notes.—Miss Home has now completed the tests for her "A" Licence. Messrs. Angus, Storey and Thorn made successful first solos.

Report for week ending Nov. 18.

Instructors: Flt. Lt. F. A. Swoffer, M.B.E., and W. H. Dudley. *Ground Engineers*: E. Lenny and J. Elliott. *Aircraft*: 2 (OI and OH).

Flying Time: 24 hr. 10 min.; *Instruction*: 23 (14 hr. 10 min.); *Soloists*: 5 (2 hr. 15 min.); *"A" Pilots*: 10 (5 hr. 25 min.); *Passengers*: 3 (1 hr. 10 min.); *Tests*: 8 (1 hr. 10 min.).

Notes.—There has not been much flying this week. The wind indicator is torn to ribbons and the hangars are minus several slates. No new members have been enrolled, no one has made a first solo flight, and no one has completed the tests for his "A" Licence. However, we have not been entirely idle.

We gather that the Chief Instructor has written a book on how to fly without the aid of aeroplanes. The Chief Ground Engineer has invented a new what-not out of which he may, or may not, make his fortune. The Chief (and only) Steward has laid in a fresh stock of comparatively rare, and possibly refreshing, wines. The Chief Secretary —but no, we feel that in this case another adjective is more frequently employed. The typist has got the filing up to date, and the very unchief boys (we should say the Assistant Ground Engineer and the Deputy Assistant Ground Engineer) have been wielding the paint brush faithfully so that our machines may shine like new pins when we *do* see the sun again.

The Bristol and Wessex Aeroplane Club.

[Sec.: Major G. S. Cooper, D.S.O., Filton Aerodrome, Bristol.]

Report for week ending Nov. 17.

Instructor: E. B. W. Bartlett. *Ground Engineer*: A. W. Webb. *Aircraft*: 2 (YH and TV).

AIRMINDEDNESS IN SOUTH AFRICA.—The picture shows a group of passengers who were taken up in a Moth piloted by Mr. Len Oates, Manager of Atkinsons Motor Garages Ltd., of Bloemfontein. Mr. Oates uses the machine for business duties, visiting the firm's various branches all over the country. But, as the picture shows, he occasionally uses it for the pleasure of others. The young women in the picture are typists employed by the Atkinson firm which, judging by their number, evidently does big business. Recently a light aeroplane club has been formed at Bloemfontein and he has put his Moth at the Club's disposal, an act which is much appreciated.

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("Aeroplane" photograph.)

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Flying Time: 7 hr. 35 min.; *Instruction*: 5 (3 hr. 55 min).; *"A" Pilots*: 4 (2 hr. 45 min.); *Passengers*: 2 (20 min.); *Tests*: 5 (35 min.).

Notes.—We have made the most of what little time during the week has been suitable for instructional flying.

The Cinque Ports Flying Club.

[Hon. Sec.: R. Dallas Brett, 114, High Street, Hythe, Kent.]

Aerodrome: Lympne.

Report for week ending Nov. 10.

Instructor: H. G. Travers, D.S.C. *Ground Engineer*: R. H. Wynne. *Aircraft*: 2 (NN and YJ).

Flying Time: 13 hr. 30 min.; *Instruction*: 6 (8 hr. 45 min.); *Soloists (under instruction)*: 4 (4 hr. 10 min.); *"A" Pilots*: 1 (15 min.); *Passenger*: 1 (10 min.); *Tests*: 1 (10 min.).

Notes.—The weather was kinder and the Club achieved a satisfactory week's work. Three first solos, an "A" Licence and the airframes still intact.

On Monday, Nov. 5, Messrs. Sargent and Law did excellent first solos.

On Friday, Nov. 9, Mr. Travers and Mr. Law flew YJ to Brooklands to attend the opening meeting of the Household Brigade Flying Club, with which this Club recently entered into a working agreement.

On Saturday, Nov. 10, Mr. Law, a London member, successfully passed for his "A" Licence. He put up a very fine performance in difficult weather. His landing after his figures-of-eight was a model.

Later in the afternoon, Mr. Somerset, of the Guards Depot, Canterbury, was sent solo. His first approach and landing were so good that the spectators thought they might have been just lucky, but he took off again immediately and repeated the performance exactly. If all first solos were as polished as Mr. Somerset's insurance rates would come down with a bump. The Club congratulates Messrs. Law, Sargent and Somerset on excellent performances and Mr. Travers for achieving the results.

Altogether a very good week.

Report for week ending Nov. 17.

Instructor: H. G. Travers, D.S.C. *Ground Engineer*: R. H. Wynne. *Aircraft*: 2 (NN and YJ).

Flying Time: 4 hr. 35 min.; *Instruction*: 3 (1 hr. 15 min.); *Soloists (under instruction)*: 3 (2 hrs.); *"A" Pilots*: 2 (30 min.); *Passengers*: 2 (20 min.); *Tests*: 1 (45 min.).

Notes.—Two great gales are responsible for our small flying time this week. Sunday was fine in the morning, but during the afternoon the clouds came right down onto the aerodrome and spoiled what promised to be a good day.

During the second gale the anemometer registered gusts up to 82 m.p.h. and Mr. Armstrong of Imperial Airways put up a fine performance in landing a W.10 containing three very sick passengers at Lympne. It is reported that the handling staff who took hold of the Handley Page to bring it into the hangar had the unpleasant experience of being taken for a short joy-ride while strap-hanging to the machine when it was lifted off the ground by a tearing gust. However nothing was broken and Capt. Armstrong and his W.10 succeeded where the Channel boats had failed. A good show.

On Saturday the Club's new "A" Licence pilot, Mr. H. R. Law, made an excellent cross-country flight to London in YJ and hazy weather. As Mr. Law had only done about 4 hours' solo flying prior to this, his performance was extremely praiseworthy. As his time is not yet known it is not included in the hours flown for the week.

Liverpool and District Aero Club.

[Sec.: J. Ellis, Hooton Park Aerodrome, Wirral.]

Report for week ending Nov. 17.

Instructor: Flt. Lt. J. B. Allen. *Ground Engineer*: Mr. Howard Pixton. *Aircraft*: 2 (XY and WK).

Flying Time: 12 hr. 50 min. *Instruction*: 16 (9 hr. 30 min.); *Soloists*: 2 (50 min.); *"A" Pilots*: 1 hr. 55 min.; *Tests*: 7 (35 mins.).

Notes.—The weather has been more suitable for a preliminary course in Arctic Exploration than learning to fly.

Our blue tit is still bullying XX, we are thinking of putting XX on a diet of "Benbow" after noting last week's comments in The Aeroplane.

The Northamptonshire Aero Club.

[Hon. Sec.: P. G. Hayward, 19, Market Square, Northampton.]

Aerodrome: Sywell.

Owing to the success of our recent Pageant at Sywell Aerodrome on Sept. 29, the Committee have decided to hold a further Pageant on Whit Tuesday, May 21, 1929.

All pilots, aircraft manufacturing firms and members of various Clubs are cordially invited to attend.

Further details of the arrangements will be forwarded in due course and the Secretary shall be pleased to supply information regarding the Club or the Pageant to anybody requiring it.

The Household Brigade Flying Club.

The Household Brigade Flying Club confines its membership, which at present numbers about 70, to past and present Officers of the Household Cavalry and the Brigade of Guards.

Major-General C. E. Corkran, C.B., C.M.G., is the President of the Club, Colonel C. P. Heywood, C.M.G., D.S.O., Chairman, and Lieut. R. L. Preston, Coldstream Guards, Hon. Secretary.

The present policy of the Club is to take advantage of certain arrangements with other clubs regarding flying instruction.

Until Mar. 30 the Club Headquarters are at Brooklands, but from April onwards they will be at Heston Aerodrome, which is ideally situated for London, being near where the Great West Road meets the Bath Road.

Later it is hoped to obtain a Club aeroplane at Heston for "A" licence pilots.

At present eight members have their "A" licences and several more members are under instruction.

The Club sustained a great loss in the death of the late Lieut. G. Madocks, Coldstream Guards, in a flying accident at the opening meeting of the Club at Brooklands, while piloting his own machine. However it has not prejudiced the success of the Club and the Household Brigade Flying Club seems to be going ahead with great vigour.

The Scottish Flying Club.

[Sec.: George Baldwin, 101, St. Vincent Street, Glasgow.]

Report for week ending Nov. 17.

Instructor: R. M. Stirling. *Ground Engineer*: W. R. Calder. *Aircraft*: 2 (YG and TY).

Flying Time: 12 hr.; *Instruction*: 5 hr. 45 min.; *Soloists*: 1 hr. 20 min.; *Passengers*: 3 hr. 45 min.; *Tests*: 1 hr. 10 min.

Notes.—Instruction with Mr. Stirling: Miss Hendry, Messrs. Fairweather, Primrose and Sinclair.

We thank C. G. G. for his gratuitous report on the work of the Club in last week's The Aeroplane, but at the same time hasten to correct him on one or two matters which he, no doubt, through an excess of admiration for us, has rather exaggerated. We certainly lay no claim to be a super-efficient Club—far from it. We have much to learn. Our staff is quite good, but we ask that their blushes be spared, and would remind C. G. G. that comparisons are odious. Lastly, our seeming aloofness from the inter-Club affairs is not of our own choosing but is rather forced upon us geographically.

Flying during the week was greatly hampered by almost incessantly wet weather and by the consequent state of the landing ground, but, in spite of this, the enthusiasm shown by members in taking advantage of every bright spell was very gratifying.

The social evening held on Tuesday in conjunction with the visit of Sir Sefton Brancker proved most successful and was thoroughly enjoyed by all. In the course of a short address, Sir Sefton explained very clearly the position of the Clubs with regard to the proposed Guest Scheme, and advised us to approach it with a broad mind and with a due regard to the progress of aviation as a whole. During the evening the Badminton Section played off an American Tournament under the control of Mr. J. C. Houston. After some interesting play the winners were Miss Elizabeth Anderson and Mr. G. C. Walker.

The sudden and altogether unlooked-for closing down of the Reserve Training School at Moorpark Aerodrome, on the instructions of the Air Ministry, has reduced the aerodrome personnel very considerably and, besides depriving the Club of excellent neighbours, has had a most depressing effect on those most interested in aviation matters.

FLYING SCHOOLS.

The De Havilland Flying School.

Report for week ending Nov. 18.

Flying Time: 43 hr. 5 min.; *Instruction*: *Dual*, 13 hr. 20 min., *Solo*, 15 hr. 50 min.; *Other Flying*: 13 hr. 55 min.

Notes.—In common with the rest of the country we have experienced continuous bad weather during the week. Nevertheless six new Gipsy-Moths were tested and delivered and several more are ready for their initial flight.

Some of the new workshops at Stag Lane Aerodrome are now nearing completion and the production of Gipsy-Moths should greatly increase in the near future.

It is pleasing to note that Capt. Malcolm Campbell has found his Gipsy-Moth of great service in his search for a suitable speedway in Africa on which to attack the motor-car speed record, and we wish him every success on his next attempt.

Another of the popular dances organised by the D.H. Sports Club is to be held on Wednesday, Nov. 28, at the Arcadia Dance Salon, Finchley.

The Brooklands School of Flying.

[Sec.: H. S. Hamilton, Brooklands Aerodrome, Byfleet.]

Report for week ending Nov. 18.

Instructors: Capt. H. D. Davis, A.F.C., and Major Pickthorn. *Ground Engineers*: W. A. Watts and W. H. Hellon. *Aircraft*: 2 (VE and WJ).

Flying time: 15 hr. 30 min.; *Instruction*: 10 (11 hr. 45 min.); *Soloists*: 2 (40 min.); *"A" Pilots*: 2 (1 hr. 5 min.); *Passengers*: 2

Notes.—As stated in our last report, the Brooklands School of Flying Ltd. was officially opened on Friday, Nov. 9. Despite the very bad weather some results have already been shown.

Mrs. W. B. Scott, the famous racing motorist, has done her first solo in perfect style. Also Mr. G. P. Kerr, of *The Eastern Evening News*.

We welcome three new pupils:—W. T. D'Eyncourt, E. L. Donner (Guards' Club) and C. S. Burney, the well-known motor cyclist.

Our Sunday "At Home" Meeting was a great success and we wish to thank Lieut.-Col. G. L. P. Henderson, Capt. Geoffrey de Havilland, Mr. Hubert Broad, the Hon. F. E. Guest, Miss Spooner, Flt. Lt. E. R. Scholefield, Flg. Off. Summers, and many other well-known pilots for helping the proceedings.

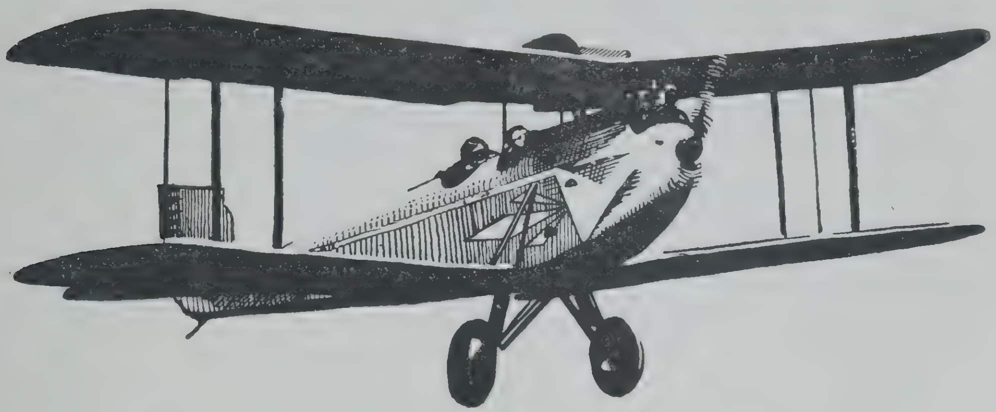
The Directors of the Brooklands School of Flying intend to make a special point of week-end flying and we invite all private owners and those interested to turn up any week-end.

The Brooklands School At Home.

The Brooklands School of Flying gave a very cheery afternoon At Home on Sunday last, Nov. 18. The good feeling which exists among the newer generation of aviators and the older was shown by the number of aviators from the districts all round London. Altogether there were ten or a dozen machines on the ground.

Capt. de Havilland came over on his Coupé Moth and took up a number of passengers, all of whom were delighted with the comfort of the machine. Mr. Broad performed his usual beautiful evolutions to the joy of beholders. Lt.-Col. Louis Strange arrived alone in the Simmonds Spartan and before alighting performed in a way which showed that he has revived all his old skill as a War pilot. Evidently he has not joined the famous Non-Tilt Pilots' Union, that mythical organisation which is one of the standing jokes among aviators who are in favour of Safety First. Mr. Tiny Scholefield crowded into the Spartan later and showed its possibilities as an aerobatic machine. Miss Spooner arrived by road, having lent her machine to another pilot. Mr. Schofield, R.A.F., also came by road, as did several other pilots who were temporarily without machines. One mentions this as showing the popularity of these afternoon At Homes.

Capt. Davis, the Managing Director of the School, and his assistant pilots, took up many passengers in the school machines. Mrs. Lindsay (Capt. Davis' mother), Mrs. Davis and Mrs. Scholefield, as the Reception Committee, entertained the guests of the School most hospitably and the whole show was thoroughly enjoyable.—C. G. G.



RECORD FLIGHT TO BERLIN ON SHELL PETROL

The flight of the Simmonds 'Spartan' from Croydon to Berlin in the latter half of October again demonstrated the superiority of Shell.

Mr. H. W. R. Banting, with a passenger, flew the distance of over 600 miles in 7 hours 10 minutes in a Simmonds 'Spartan' light aeroplane fitted with a Cirrus Mark 3 engine, and returned in a little under 6 hours.

This is a world's non-stop record for this kind of flight in a light aeroplane.

SHELL

THE WELL BALANCED PETROL

THE BROOKLANDS FLYING SCHOOL.

A recent development in aviation which deserves particular attention is the formation of the Brooklands School of Flying, Ltd., which has taken over the assets and goodwill of the Henderson Flying School at Brooklands, founded and run so successfully by that well-known pilot, Lt. Col. G. L. P. Henderson.

The Brooklands School of Flying is certainly one of the happiest names which could have been chosen, in view of the historical associations of Brooklands with the earliest days of flying. The Managing Director is Capt. H. D. Davis, A.F.C., late R.F.C. and R.A.F. With him is associated Mr. H. S. Hamilton, as Secretary, and Mr. L. R. Oldmeadow, both as co-directors of the firm.

Capt. Davis has been chief instructor at the Henderson Flying School since 1927, and looks so youthful that prospective pupils at the School might easily be deceived into thinking that he is a post-War product of aviation and might thereby be made suspicious of his competence as an instructor. As a matter of fact, Capt. Davis is quite among the pioneers of aviation. He first took an active interest in flying in the year 1910 when, as a small boy at school, he started the Dover Model Aero Club.

In the following year he ran away from school and imposed himself on the late S. F. Cody as a member of his staff on Laffan's Plain, Aldershot. His parents tried to persuade him to follow a more respectable occupation than aviation promised to be at that time, but he insisted on staying where he was, and his parents very wisely let him have his way and made him a small allowance to eke out whatever little pay our old friend Cody could give him as a boy labourer in those days.

One fears that Capt. Davis' mother was largely to blame for her son's infatuation with aviation, for she herself was one of the very first women in England to take a vivid interest in flying. One well remembers Mrs. Davis, in the earliest days of THE AEROPLANE, visiting the office of this paper and arguing vehemently the fitness of women as pilots, while occupying the only office chair,—and a broken one at that, which was even more precarious than the aeroplanes of the period

However, young Davis remained an enthusiastic member of Cody's staff until that much-beloved pioneer was killed through the breaking of one of his own machines, Aug. 7, 1913. A month after this tragedy Davis joined the Sopwith Aviation Co. Ltd. as a premium pupil.

Immediately on the outbreak of War in August 1914, he joined the R.F.C. as a mechanic and was posted to France early in September, so, for all his youthfulness, he is the possessor of the much-coveted 1914 Star. By steady application to his work he rose to the rank of flight-sergeant, and early in 1916 was given a commission. He qualified as a pilot of Maurice Farman Longhorns and was posted to No. 32 Squadron, R.F.C., in the Field.

In 1917 he was appointed Flight-Commander, and, after serving over-seas for eight months, was posted to the famous Gosport Special School of Flying, which, under Major Smith-Barry and Major F. P. Scott, raised the high-water-mark of piloting to unsuspected heights. There Capt. Davis qualified as A1 and was posted as Wing Examining Officer to the 34th Wing, where he was at the time of the Armistice.

In 1919, as soon as Civil flying began, he qualified to carry passengers for hire or reward and holds B licence No. 22. He was then put in charge of the joy-riding detachment run by A. V. Roe and Co. Ltd. at Margate. In 1921 he gave up flying as a profession and took over a partnership in a welding business in London. But he remained on the R.A.F. Reserve all the time.

In 1927 he returned to flying again as chief instructor under Col. Henderson. And with him he has worked amicably until he himself took over the business.

An interesting point about the Brooklands School is that all the shareholders in the firm are qualified aviators or flying pupils. The early associations of Brooklands with aviation led to the choice of the new name, and the chief aim of the directors is to carry on the old Brooklands traditions. From what one has seen of it in action one can vouch for the fact that it is just as cheery as, and considerably more effective than, were those pioneer establishments which were the joy of one's life seventeen or eighteen years ago.

C. G. G.

IN THE SUDD.

Lieut. Commander Glen Kidston (late R.N.), who was flying to Kenya in a Fokker FVII-3m. accompanied by a friend, a valet, a cinema operator and piloted by Mr. Donald Drew, has crashed in the Tombe channel, 30 miles south of Bor, in the Sudd region of the Sudan.

A steamer from Mongalla has picked up the party at Malek and the crew intend to return later to salve the machine, the extent of the damage to which is unknown.

[*Note by the Office Humorist*:—How sudan and what a bor to *tomber* in the sudd.]

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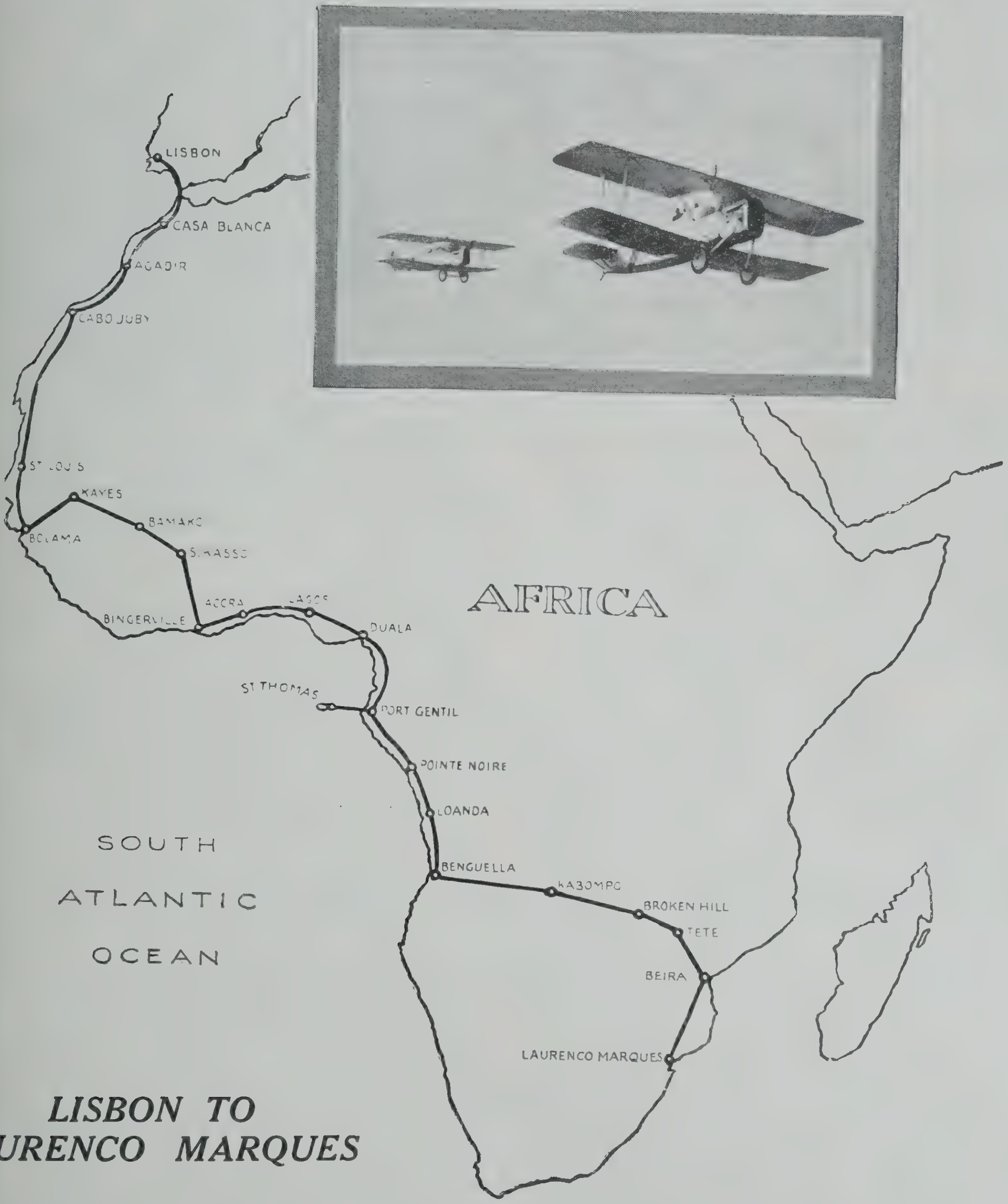

LISBON TO LAURENCO MARQUES

A flight from Lisbon to Laurenco Marques (total distance 16,014 kilometres) was accomplished in 100½ flying hours by **Captain Pais Ramos, Captain Oliveira Viegas, Ten. J. Esteves and Mec. M. Antonio** in two **VICKERS-NAPIER "Valparaiso" Military two-seater Landplanes.** (The machines concerned were supplied by **Vickers Limited** to the **Portuguese Government** in 1924 since when they have been in constant service.)

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 7; Monday, 13; Tuesday, 20; Wednesday, 17; Thursday, 10; Friday, 6; Saturday, 16.

Imperial Airways Ltd.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 40, passengers 224, freight 13 tons.

Air Union:
Paris—London and return: Machines 16, passengers 49, freight 14½ tons.

K.L.M.:
Amsterdam—Rotterdam—London and return: Machines 11, passengers 48, freight 4 3/5 tons.

Sabena:
Brussels—London and return: Machines 7, passengers 10, freight 2 tons.

Deutsche Lufthansa A.G.:
Amsterdam—London and return: Machines 12, passengers 30, freight 2 tons.

Miscellaneous:
British machines 3, passengers 1.
Foreign machines 0, passengers 0.

Total number of trips by British Machines, 43, carrying 225 passengers. Foreign Machines, 46, carrying 137 passengers.

COMPARATIVE FIGURES.

Week ending Nov. 17:
Machines, 89; Passengers, 362; Crews, 175; Total personnel, 537.
Corresponding week, 1927:
Machines, 79; Passengers, 304; Crews, 144; Total personnel, 448.
Corresponding week, 1926:
Machines, 50; Passengers, 133; Crews, 65; Total personnel, 198.
Corresponding week, 1925:
Machines, 43; Passengers, 111; Crews, 52; Total personnel, 163.
Corresponding week, 1924:
Machines, 61; Passengers, 134; Crews, 76; Total personnel, 210.
Corresponding week, 1923:
Machines, 31; Passengers, 57; Crews, 49; Total personnel, 106.
Corresponding week, 1922:
Machines, 65; Passengers, 151; Crews, 121; Total personnel, 272.
Corresponding week, 1921:
Machines, 44; Passengers, 87; Crews, 71; Total personnel, 158.
Corresponding week, 1920:
Machines, 47; Passengers, 85; Crews, 57; Total personnel, 142.

Croydon Notes.

Conferences and arguments as to methods of traffic control in bad weather are now in full swing. After the argument recorded last week as to the order of starting in fogs, someone—not it may be said a member of the Aerodrome Traffic staff—has been suggesting that the Traffic Officer on duty should have absolute authority to settle all questions of this sort—even to ordering machines down onto the nearest aerodrome to give a clear way for another machine.

Though nobody who knows the facts of the case imagines that such a system would work without violent friction, the suggestion seems to have been received with considerable approval in high official quarters, and there are prospects that some effort to institute some such system may be made.

The essential difficulty is that traffic control at present must cater for pilots whose knowledge of the routes varies considerably, and whose readiness to come through from the coast in bad weather varies perhaps even more.

Now imagine three or four machines all approaching Croydon in thick weather. One—the leading machine—is unfamiliar with the route, or for some other reason is not particularly happy and spends a good deal of time hunting round for the best way in. Behind him are pilots who know the route and ready and willing to come straight on. Is the Control Tower to order the following machines to wait until the leader either gets to Croydon or sits down somewhere else? or to order him down to clear the road for the followers? or let them all come through and risk two or three of them meeting in the Redhill valley?

Either of the two first alternatives will annoy one or other party, and the third is merely to leave things as they are.

On Friday the Croydon anemometer registered a gust of slightly over 80 m.p.h.—so far a record for anywhere in the neighbourhood of London. Before the gale reached its height, the rain made a thoroughly good effort at record-beating, and Croydon was on that morning the wettest and windiest aerodrome that has been encountered in over fifteen years' experience of such places.

Early in the morning clouds were well down on the hill but four machines succeeded in getting out and two i coming in before 10.30 hours. After that the wind stoppe everything.

THE CAIRO—BASRAH SERVICE.

A newspaper report on Nov. 17 stated that the Air Ma on the service between Cairo and Basrah was overdue an that a machine was missing in the desert.

Imperial Airways state that the machine in question wa held up at Gaza by bad weather on Thursday, Nov. 15. I reached Baghdad on Friday, Nov. 16, made up lost time b flying from Baghdad to Basrah and back on Saturday, Nov 17, and reached Cairo, according to normal schedule o Sunday, Nov. 18.

THE HOLLAND-EAST INDIES SERVICE.

On Nov. 15 the last of the five Fokker FVII-3m mono planes (three 200 h.p. Armstrong-Siddeley Lynx engines) t fly from Amsterdam to Batavia arrived back in Amsterda after a flight from Batavia lasting only nine days. The firs four machines all remained in the Dutch East Indies t operate the recently inaugurated service between Batavia Sourabaya and Bandoeng.

On Dec. 7 another machine will leave Amsterdam wit Christmas mail for the Dutch East Indies and will return t Amsterdam before the New Year.

Further experimental flights will be made in the first fou months of next year. In September a regular fortnightl service will begin for mails only, and in 1931 a regular passenger service will be inaugurated.

CIRRUS ENGINES IN THE U.S.A.

The exclusive American sales, manufacturing and distribution rights for the A.D.C. Cirrus engine have been purchase by a banking syndicate headed by Campbell, Peterson an Co. Inc., of New York City.

An official of the above-mentioned company has stated tha a thorough investigation of the merits of the engine ha been made and the company considers that it will be splendid addition to the American market.

Many Cirrus engines have already been sold in the U.S.A and it is reported that more than 2,500 applications hav already been made to the banking syndicate for agencie through the United States.

CIVIL AVIATION IN PARLIAMENT.

CIVILIAN PILOTS.

In the House of Commons on Nov. 13, in reply to a question by Capt Garro-Jones, the Secretary of State for Air said that there were si light aeroplane clubs in operation during the period, January t September, 1927; and eleven at the beginning and thirteen at the en of the period, January to September, 1928. The number of new licence issued to club members during the former period was 56 and durin the latter period 171.

The number of civil licences issued to persons other than thos above during the same periods was 87 and 136 respectively. In al cases licences issued to serving R.A.F. officers are excluded.

LOW FLYING.

In the House of Commons on Nov. 14, in reply to a question b Mr. Day, the Secretary of State for Air said that the total numbe of complaints received from time to time, regarding low flying ove thickly populated districts, was not great. Each complaint was deal with by a senior officer at the Air Ministry, carefully investigated, and, if considered desirable, brought to the personal notice of the Secretary of State for Air. Suitable action was taken whenever the circumstances appeared to demand it and the pilot could be identified. For example, an R.A.F. pilot might be dealt with disciplinary [*sic* Hansard—Ed.] or even brought before a court-martial; and a civil pilot's licence might be suspended if he could give no reasonable explanation of his low flying. He was also liable to have proceedings taken against him by the police under the Air Navigation Order where, by flying at a low altitude or in proximity to persons or dwellings, he causes unnecessary danger to persons or property. The Air Ministry was fully alive to the importance of this question and he was most desirous that the development of aviation in this country should be attended by a minimum of inconvenience to the general public. Special warnings on the subject had been issued to both Service and civil pilots.

THE ENGLAND—INDIA SERVICE.

In the House of Commons on Nov. 15, in reply to Sir N. Gratton-Doyle, the Secretary of State for Air said that an agreement was being made with Imperial Airways which provided for the beginning of the England—India air service on April 1, 1929.

THE CHICAGO EXHIBITION.

In the House of Commons on Nov. 15, in reply to Sir H. Brittain,

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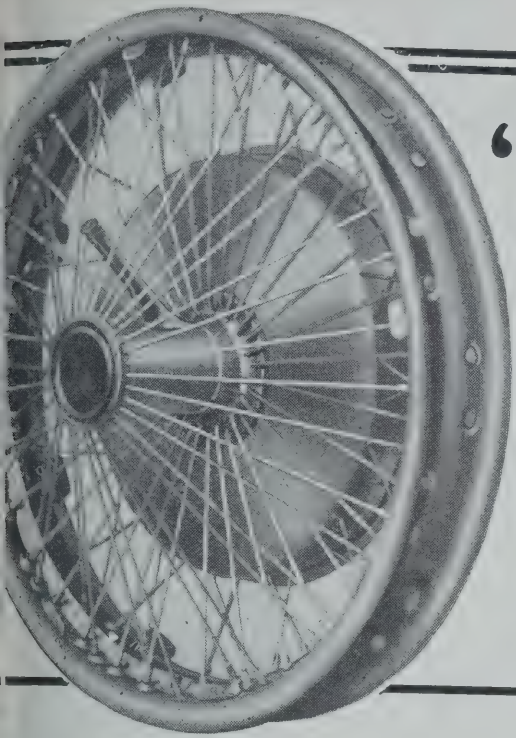

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DIEU ET MON DROIT

he Portuguese Flight to Africa
was carried out on Wakefield Castrol

Capts. Pais Ramos and Oliviera Vieges, accompanied by Lieut. Joso Esteves and Sgt. Mechanic Manuel Antonio, left Lisbon on September 5th last, flying two Vickers "Valparaiso" biplanes fitted with Napier "Lion" engines. They arrived at Lourenco Marques, on October 26th, having covered a distanee of over 9,500 miles in 26 flying days, without a mishap.

The aeroplanes and engines had seen several years' service in the Portuguese Air Force, the route was not easy, and there was only one mechanic, so that the success of the flight is a tribute to all concerned, including—

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the Secretary of State for Air said that so far as he was aware there would be no British exhibit at the forthcoming Chicago Aviation Exhibition.

THE LONDON—PRAGUE SERVICE.

In the House of Commons on Nov. 15, in reply to Sir H. Brittain, the Secretary of State for Air said that he hoped the aeroplane service between London and Prague would be inaugurated in the Spring of next year. It was proposed to operate a daily service (Sundays excepted) in each direction for about seven to eight months during each year.

FLYING-BOATS AND OCEAN FLYING.

The opinions which have been expressed in The Aeroplane of late concerning the sea-worthiness of flying-boats for regular ocean air-lines, seem to be confirmed by the recent loss of one of the wooden-hulled Southamptons delivered recently to the Royal Australian Air Force. Flying-boats for fighting Services can stay at home in bad weather in time of peace, or they can be smashed up regardless of cost in money or lives in time of war. But Air-line boats must run to schedule and must not kill or drown their passengers.

There is certainly no flying-boat in the World which is better able to ride out a gale on the water than is the Supermarine Southampton. Possibly if the Supermarine Company, or any other of our first-class flying-boat builders, were to build a flying-boat twice as big as the Southampton it would stand a gale which would raise waves twice as high as those which the existing Southampton will stand. But seeing what damage is done to sea-going steamships with hulls ever so much bigger than can ever possibly be built economically for flying-boats, anybody interested in this side of aviation must realise that there is a limit to what flying-boats will stand so long as the design is such that hull, wings, engines and tail unit are supposed to remain in one piece.

From what one can gather, the pilot of the Australian Southampton had his boat properly moored when it was struck by a miniature hurricane. He managed to save the hull, tail, tanks and wing-floats, some of the struts and most of the wireless and internal gear. New main planes and oddments will have to be sent out from England, and the engines will also need a good many bits renewed where the salt water has eaten into them.

Evidently the crew of the boat put up a very good show, but in spite of that the accident is said to have caused a severe set-back to flying-boat propaganda in Australia.

Now if that boat had been of the type suggested in The Aeroplane, in which the hull could have slipped away from the super-structure as a motor life-boat, the fact that it actually did so would have been a very fine piece of flying-boat propaganda in Australia. The Australian tax-payer would have forgotten all about the cost of losing wings, tail and engines in his interest in learning that the crew had been saved by the life-boat hull.

We have got to come to it some day. And the sooner one of our aircraft constructors produces such a thing the better it will be for his pocket in the end. If we do not do it we shall have the Americans doing it first and selling flying-boats to our overseas Dominions for over-seas air-lines.—C. G. G.

NEW COMPANY.

Aircraft Securities.—Aircraft Securities Ltd. was registered as a "private" company on Nov. 14, with a nominal capital of £100 in £1 shares. The objects are to carry on the business of bankers, financiers, capitalists, underwriters, shipowners, shipbuilders, engineers, machinists, manufacturers of engines, tools, machinery and other plant. The subscribers (each with one share) are: C. H. Sleigh, 3, London Wall Buildings, E.C.2, solicitor. G. Daniell, 3, London Wall Buildings, E.C.2, solicitor's clerk. The first directors are not named. Solicitors: Jenkins, Baker and Co., 3, London Wall Buildings, E.C. The registered office is at 3, London Wall Buildings, E.C.2.

PERSONAL NOTICES.

Death.

SMITH.—At Cranwell, on Nov. 13, Ernest Smith, Flg. Off., R.A.F. Mr. Smith joined the R.A.F. in 1918 as a Technical Officer, October, 1919, he was promoted Flying Officer and graded as observer. In 1920 he was posted to No. 205 Sqdn., Leuchars, and October, 1921, he was posted to No. 3 Sqdn., then at Gosport. March, 1923, he was posted to the R.A.F. Cadet College, Cranwe for engineering duties. He was 42 years of age.

Marriage.

MARTIN—WALKER.—On Nov. 14, in London, Aubrey Willia Graham Martin, R.A.F., only son of Brigadier-General H. Mart C.B., of Torquay, and Mary Walker, of The Lake Vyrnwy Hot Oswestry, widow of Cdr. B. C. Walker, R.N.

Forthcoming Marriages.

McDONALD—GRAY.—The marriage arranged between Arthur W. McDonald, R.A.F., elder son of Dr. W. M. McDonald, O.B.E., a Mrs. McDonald, of St. John's, Antigua, and Mary Julia, eldest daught of Dr. and Mrs. Ronald Gray, of Whincraft, Hindhead, will take pla at St. Luke's Church, Grayshott, Hindhead, on Dec. 15.

WAGHORN—WATSON.—The engagement is announced betwe Henry Richard Danvers Waghorn, R.A.F., elder son of the late M John Danvers Waghorn and Mrs. J. D. Waghorn, Aston Clinto Bucks, and Mary Helen Dymock (Dollie), only daughter of the la Mr. Robert Watson and of Mrs. Robert Watson, The Bourne Ridg Farnham, Surrey.

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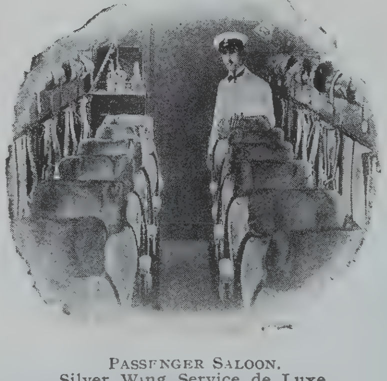

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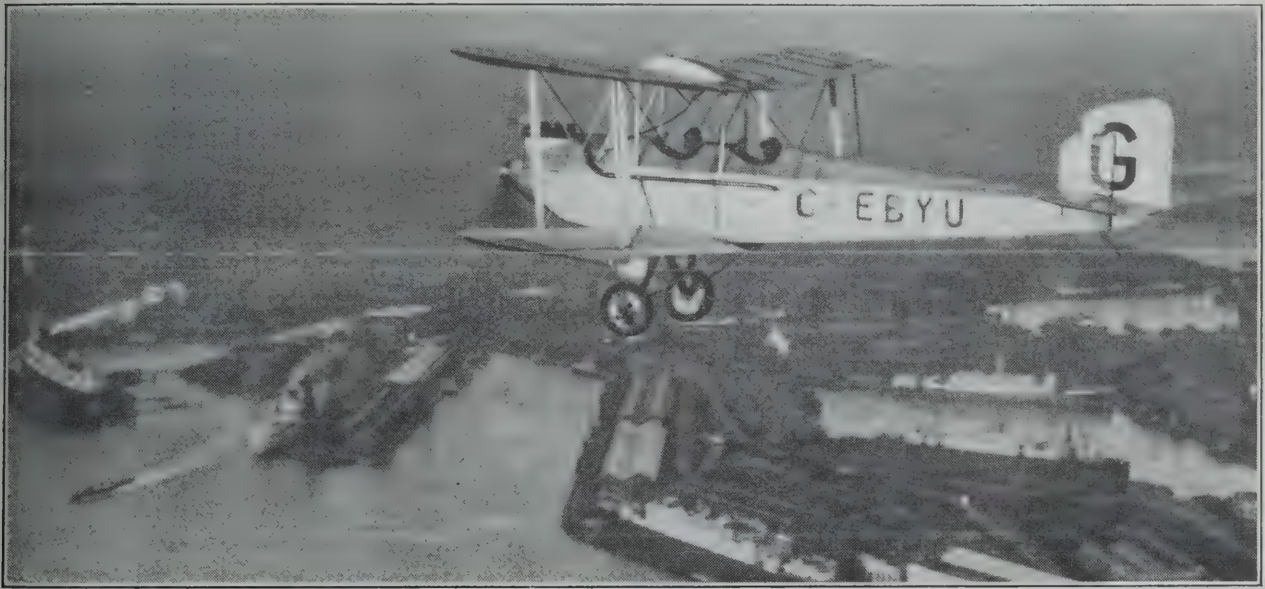
THE AEROPLANE—NOV. 28, 1928.

MUCH TO SEEK.

THE AEROPLANE
INCORPORATING AERONAUTICAL ENGINEERING
Edited by C. G. Grey

Vol. XXXV. No. 22. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"THE GIFT OF BEING NEAR SHIPS, OF SEEING EACH DAY, A CITY OF SHIPS WITH GREAT SHIPS UNDER WEIGH."—*(John Masefield.)*



OVER SOUTHAMPTON DOCKS:—The Simmonds Spartan (A.D.C. Cirrus) piloted by Mr. H. W. R. Banting, flying over Southampton Docks.

homing

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ON RESEARCH—II.

THINGS TO BE DISCOVERED.

One of the interesting facts which have been discovered in the N.A.C.A.'s high-speed tunnel is that by totally enclosing a radial engine in cowling the speed of a machine can be ncreased beyond anything which mere calculation would show to be possible, and yet the engine can be kept cool. A machine of the popular cabin-monoplane type which, with a 200 h.p. Whirlwind engine and normal cowling covering about three-quarters of it, has a speed of 125 m.p.h. has had its speed put up to 133 m.p.h. with complete cowling. And, ncidentally, as photographs show, the appearance of the machine is improved.

Figures quoted in THE AEROPLANE recently from an American paper gave the improvement as being from 118 m.p.h. o 137 m.p.h., and a scientific critic proved that the higher peed was impossibly high. The true figures, as herein quoted on reliable authority, are startling enough. No doubt they also could be proved by pure or applied mathematics to e impossible. And quite possibly the higher figure may e reached by further improvements.

Experiments have gone that far, but there is still more o be done in the way of discovering what shape of cowling est suits particular forms of fuselages. Also the shape of pinner which best suits particular forms of cowling has to e discovered,—and whether, with certain airscrews and owling, any kind of spinner is worth while has to be proved. Then there are experiments to be made as to the best hapes of fuselage which can be made big enough to include cabin. And there is the question of the best way of fixing wing in relation to a cabin fuselage.

Naturally all our own experimentalists have been and still re engaged on these problems. Some of them try to get here with slide rules and the Prandtl Theory. Some of hem try to do it in wind-tunnels with such low speeds that he results may be quite misleading. And some of them try o do it on actual aeroplanes, in which all sorts of errors re likely to occur because a combination of undercarriage, ing, fuselage, engine and cowling which gives a certain erformance may have that performance entirely upset by tering any one of the components, though, altering other mponents to fit in with the first alteration might give a stly improved performance.

THE CABIN MONOPLANE FASHION.

At the moment cabin-monoplanes are all the rage. There are fashions in aeroplanes just as much as there are in hats or trousers. High-wing monoplanes of the Fokker or Lockheed type put up performances which, allowing for differences in engines and other things, are not vastly different from the performances of low-wing monoplanes of the Junkers or D.H.53 or Klemm type.

There must be some way of finding out which is really the best combination. No one firm is likely to go to the expense of making the whole series of experiments needed to find the truth. Apart from which, every firm's chief designer has his own particular prejudices or fads in shapes of fuselages, lines of engine-cowling, designs of undercarriages and so forth. And those prejudices might result in discovering facts which are not facts at all.

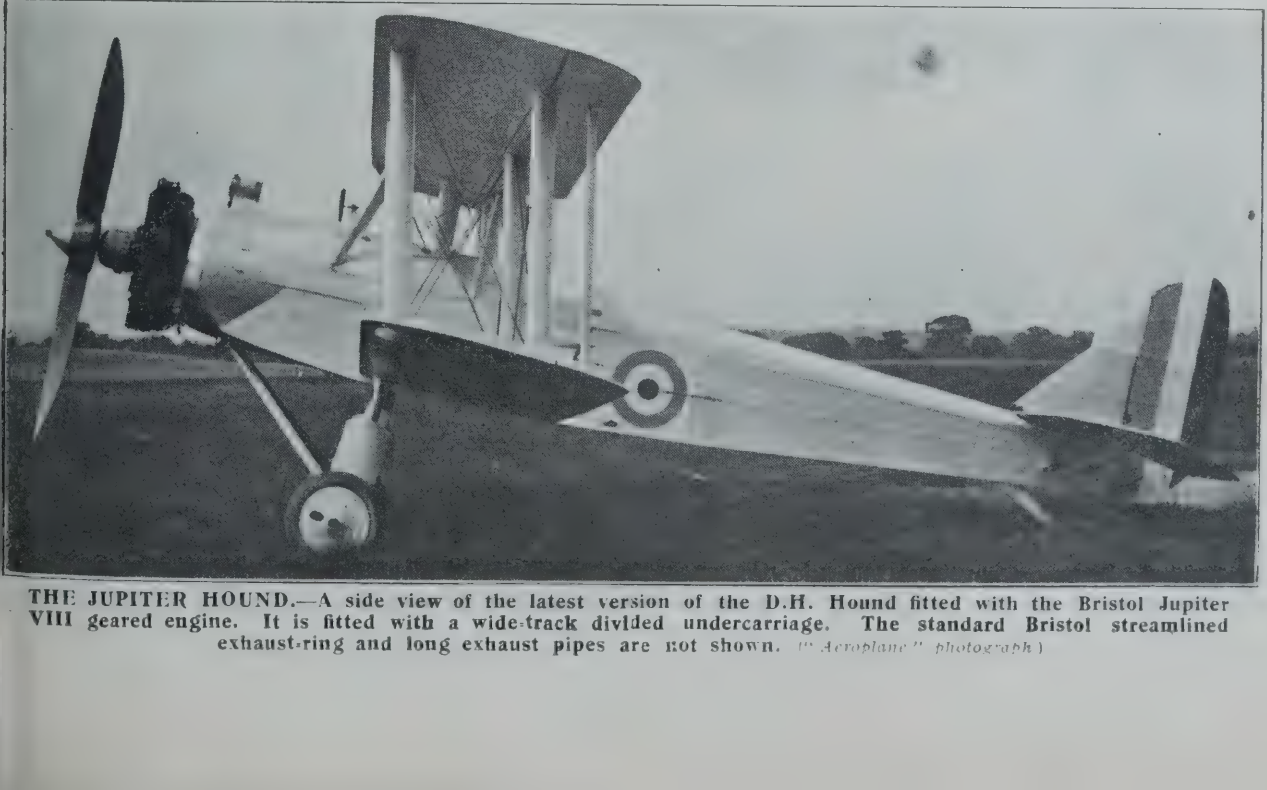
CONTROLS.

There is a vast amount of research still to be done before we discover the ultimately best form of control for aircraft. If we are going to have pusher-screws, as one is perfectly certain we must have some day, there may be quite a lot to be said for developing Capt. G. T. R. Hill's Pterodactyl type. There you have a ready-to-wear design which is simply made for pusher screws, without any special shafting or gearing. But is wing-tip control right?

One argument against the Pterodactyl is that if one wing-tip control goes wrong there is nothing between the passengers and St. Peter except a parachute, whereas with an ordinary machine, a smashed or damaged aileron can generally be counteracted with the rudder and elevator. On the other hand, there is equal truth in the argument that if a machine has its tail shot away, or if an elevator jams, or a tail control-wire breaks, the parachute again is the only salvation.

There seem to be opportunities for improving existing tail and rudder controls. In the very early days of aviation there was a good deal of argument as to whether fixed tail-planes with elevators attached, and fixed fins with rudders attached were really necessary.

The early Morane monoplanes had no such fixed surfaces. They had balanced rudders and balanced elevators and nothing else. And they certainly were wonderfully easy to



THE JUPITER HOUND.—A side view of the latest version of the D.H. Hound fitted with the Bristol Jupiter VIII geared engine. It is fitted with a wide-track divided undercarriage. The standard Bristol streamlined exhaust-ring and long exhaust pipes are not shown. ("Aeroplane" photograph.)

handle. But, of course, they were open to the objection that if a control-wire broke the machine was absolutely out of control, whereas with a fixed tail-plane and a fixed fin the elevators and rudder merely floated behind the fixed surfaces if a wire broke, and the machine could be given so much inherent stability that it might with luck be got down safely.

Lately one has seen an arrangement produced by Vickers Ltd. which seems to combine all the advantages of both systems. There are no actual fixed surfaces, but the elevators and rudder are so balanced that if a control-wire breaks, or is shot away, the control surfaces tend to float into a neutral position, and additional safety is given by a very simple spring arrangement which fixes the surfaces in that central position when they reach it.

Also the elevator is provided with a cheese-cutter adjustment, just like the fixed tail-plane adjustment on most machines, which allows the pilot to adjust the elevator, even after he has lost control of it, so as to give the machine stability fore and aft.

The fixed surfaces having been thus removed, the elevator and rudder controls are extraordinarily quick and easy to handle. And as the old danger of the early Morane type has been removed, there seems to be no particular reason why in future we should continue to pull through the air fixed tail-planes and fins which merely add to head resistance and do no useful work.

To return to the Pterodactyl, it does at any rate offer considerable temptations to the designer of a big flying-boat, for with wing-floats which can also carry rudders to act in air and water it seems to have possibilities.

Safe Flying-Boats.

This again brings up the need for research for a safe type of ocean-going flying boat. Nothing practically so far has been done about producing a flying-boat in which the hull is a self-contained motor life-boat. Quite a number of serious designers agree not only that such a type of hull is comparatively easy to build as an engineering proposition, but that it is the one and only way of assuring safety to the passengers and crews of flying-boats which may be brought down in a heavy sea.

Quite apart from that, the detachable hull idea has clear commercial values. It was in fact originally invented by Mr. Pemberton Billing with the idea that flying-boat services plying to busy ports, such as Southampton, could moor their wings, complete with aero-engines and all air controls, out in open water, while the hull, as a motor boat, went up through the shipping to the docks to discharge or take on passengers.

Here is an experiment which could be tried without any enormous expenditure of money. If a comparatively small flying-boat could be built to work successfully, the bigger sizes in flying-boats would all be built on the same scheme, with definite commercial advantage. Firstly, the saving of a lot of passengers in this way would be the best kind of advertisement for the safety of ocean flying, and secondly, though the loss of money on wings, aero-engines, and so forth would be considerable, there would also be a considerable amount of money saved by getting the hull home safely.

Pusher or Tractor.

Then there is the question, which personally one believes to be quite one of the most important to the progress of aviation, whether airscrews ought to be pushers or tractors. Not only does this question affect economy in running, it also affects the comfort of passengers, and consequently the popularising of flying, especially in big air line machines. And one believes that it affects the speed of aeroplanes to quite a considerable extent.

We have already discovered that geared airscrews give single-engined tractor machines a much higher performance,—not so much because a big slow-running airscrew is itself so much more efficient but rather because a big airscrew has so much more blade-area working outside the area obstructed by the engine and fuselage.

In some instances twin-engined machines, in which the airscrews have a comparatively clear run for their slipstreams, put up a better performance in relation to engine-power than single-engined machines. But apparently three-engined machines have not a correspondingly good performance, because the efficiency of the central engine is blanketed by the fuselage.

Then we have the interesting fact, disclosed a year or so ago, that where the slipstreams of the wing-engines and the central engine overlapped on one of the early types of Junkers three-engined machines, the metal covering of the wing was definitely damaged by the slipstream. There were, in fact, rumours that the interior structure of the wing also suffered considerably from some curious vibration set up in this way. And apparently the trouble was cured by setting the wing engines further out, so that their slipstreams cleared that of the central engine.

Some people will remember that a few years ago the British representative machine in a big International speed race in France had to retire because the slip-stream of the airscrew was ripping the fabric off the *top* ribs of the upper plane, on one side only. That gives additional evidence of the effect of rotating slipstreams, for such damage indicates wasted power somewhere.

Next we come to an interesting variation on this theme. In building a multi-engined monoplane anybody with an eye for beauty will naturally try to build the engines right into the wing, with the airscrew shaft central with the leading edge of the wing. In this way the engine-housing can be streamlined prettily into the wing and the whole job looks beautifully clean, whether seen from the front or the side. But apparently as soon as this is done, the slipstream of the screw ruins the lift of the wing for the whole diameter of the airscrew, and the wing being so close ruins the thrust of the airscrew.

Three big engines all in a row built into the wing look very pretty. But three twelve-foot airscrews ruin the lift of thirty-six feet of wing, and thirty-six feet of leading edge ruin the efficiency of three perfectly good twelve-foot airscrews

THE AERIAL FORD.—The Ford-Stout all-metal machine (three Wright Whirlwind engines) over down-town Detroit. This is of the older type with tail-skid.

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¶ ON Nov. 4th, 1928, Flight-Lieut. D. D'Arcy Greig, D.F.C., A.F.C., R.A.F., flying a British-built Supermarine-Napier seaplane, fitted with Napier aero engine, achieved an officially timed speed of 319·57 m.p.h. Never before has any human being travelled at such a high rate of speed.

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One has been told by a high-grade scientist, who is generally quite reliable on practical points, that what is lost in this way is made up by the gain in reduced head-resistance on the whole job. But there are practical aircraft designers who disagree cordially. And this is precisely the kind of problem which can best be studied both in a big high-speed wind tunnel and in a high-pressure wind tunnel.

THE PROPER PLACE FOR ENGINES.

Mr. William Stout, more familiarly known in the States as Bill Stout, of Stout Air Services Inc., which is more or less allied with the Airplane Division of the Ford Motor Co., told one the other day that the wing engines of the Ford tri-motor ships were slung right underneath the wings for this very reason.

Dornier started with his engines down on the wing, where the line of the leading edge cut off a large arc of the disc swept by the airscrew, and he has now put his engines up much higher.

The tri-motor Koolhoven machine of 1925 had the wing engines (tractors) not only very low down but very far forward clear of the wings, and had the central engine right on top of the wing driving a pusher screw. The opinions of pilots about the machine vary, but there is no doubt that it did put up a fine performance with the power available.

The most modern of Rohrbach machines, the giant Romar, has all three engines mounted on trestles right on top of the wings driving pusher screws, whereas its predecessor, the Rocco, a twin-engined ship, had tractor screws. But in this also the engines were mounted high up on trestles.

The problem here to be solved is, first of all, whether building engines into the wings does interfere with the lift of the wings and the efficiency of the airscrews so much as to make worth while putting the engines on trestles on top of the wings, thereby adding to the head-resistance, but increasing the efficiency of the airscrews.

One is fairly certain that even under such circumstances the pusher-screw is worth while. But one is still more certain that if the engines could be built into the wings so as not to interfere at all with the leading edges, and could then be arranged to drive pusher screws behind the trailing edges, the efficiency of wings and airscrews would be very much greater. This is purely an engineering problem and not an aerodynamic problem at all.

With big cantilever wings, and with what we have learned about gearing and what we have learned about cooling air-cooled engines when entirely shut-in by cowling, there seems no reason why this stage in development and design should not be reached within the next two years, if somebody will pay for building a big enough machine.

Also there seem to be possibilities in a cantilever biplane, with the engines and pusher-screws mounted between the planes.—C. G. G.

(To be continued.)

THE RAILWAYS AND AVIATION.

Elsewhere in this paper there appears a page or so of advertisements from the various Railway Companies announcing that they intend to apply for statutory powers to run air transport. If these advertisements had appeared without explanation readers of THE AEROPLANE all over the world might have jumped to the conclusion that an immense combine of railway interests was to be formed with the intention of putting out of business all other air transport undertakings, from Imperial Airways Ltd. downwards.

The panic which seems to have smitten certain people in aviation at the announcement of the Guest Scheme, which is imagined to be an attempt to form a grasping monopoly, would be nothing compared to what might be imagined as the result of a combine of all the railway interests to captu air transport. The truth appears to be that the railway con panies, having been caught napping over road transport, not intend to go to sleep about air transport.

Obviously if the railway companies had come in at th beginning of the road transport movement they might earning very fine profits at the present moment. But thos who directed the railways twenty years ago lacked the for sight of those who are at the head of affairs to-day.

For the benefit of the young one may explain that when limited company is formed it undertakes certain work in i Articles of Association. If it changes the nature of its wor its Articles of Association have to be changed by a legal pr cess. The railway companies having been formed under A of Parliament for the purpose of running railways, can onl change their operations by Act of Parliament.

When originally formed, most of the railway companie took powers to operate railways, canals and sea transpor A year or so ago they obtained statutory powers to operat road transport,—in spite of strenuous opposition from th road transport interests. Therefore they are only being log cal in seeking power to operate air transport.

One who is considerably in the confidence of those wh govern the operations of our railways writes that the pos sibilities of air transport are illimitable, and if they are pr perly to fulfil their duties to the public the railway companie must make every effort to share in the development of thi method of transport, which will have a great part in th future prosperity of the country.

In confirmation of this one may quote the remarks of Si Felix Pole, General Manager of the Great Western Railwa in the current issue of *The Nineteenth Century and After.*–

> In short, it is safe to say that the railways will certainly not mak the mistake made by many canal companies in adhering slavishly one form of transport, but will adopt all forms according to circum stances or the demands of the future, whether by railway, road, se or air.

That being so, the activities of the railway companies i aviation will be awaited with interest. Whether they co operate with existing air transport concerns, whether the run air-taxi services in co-operation with private companie now existing or which will come into existence in the future whether they take over such concerns, or whether they star sea-going or trans-continental branches similar to their steam ship services of to-day, whatever they do must in the end b to the advantage of the Aircraft Industry and of the air mindedness of the Nation.—C. G. G.

FOREIGN AIRCRAFT IN THE U.S.A.

The U.S. Department of Commerce announces that al foreign-built aircraft, with the sole exception of those pro duced in Canada, are not eligible for U.S. licences and can not be used for carrying passengers or property for hir between states or possessions of the United States.

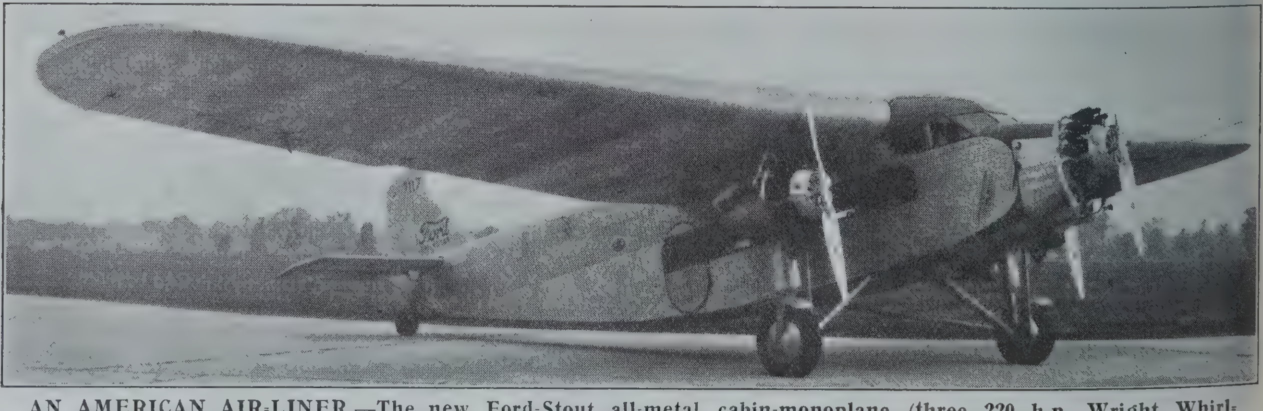
This action is due to the fact that, with the exception o Canada, no reciprocal agreement exists between the Unite States and any foreign country for the interchange of Air worthiness Certificates.

One hopes to have room to discuss this question nex week.—C. G. G.

MUNICIPAL AERODROMES.

The Air Ministry announces that the following letter o the subject of establishing municipal aerodromes was sen on Monday, Oct. 29, to the Town Clerks of the chief pro vincial cities and towns and also to a number of the mor important Urban and Rural District Councils :—

> Sir,—I am commanded by the Air Council to invite the attentio of your Corporation to a matter which is assuming increasing import ance in connection with the development of civil flying in this country



AN AMERICAN AIR-LINER.—The new Ford-Stout all-metal cabin-monoplane (three 220 h.p. Wright Whirlwind engines). Note that the slipstreams of the out-board airscrews are clear of the wings and so do not produce interference with the lift of the wings or destroy their own efficiency. The tail-skid has been replaced by a wheel-cum-brake arrangement.

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British civil aviation may conveniently be divided into two categories: the regular air services undertaken by Imperial Airways Ltd., on the one hand, and, on the other, the various forms of internal flying which include the operations of civil flying clubs, of air taxi and pleasure flying companies, and of firms engaged in air photography and air survey.

The dividing line between these two categories is distinct, but progress in the one is reflected and has a definite bearing on the other.

Although, therefore, it is to the consideration of certain facts primarily concerning internal flying that the Council would ask your Corporation to proceed, it is not irrelevant in the first instance to refer briefly to the progress being made by regular British air services.

These latter, as you are aware, consist at present of the operation of certain cross-Channel air routes and of a route between Cairo and Basrah. Under an agreement recently negotiated with Imperial Airways Ltd., it is expected that on April 1 next a through weekly service in each direction between England and India will be commenced and it is also hoped that in the near future other Imperial services will be established to South Africa and elsewhere.

The growth of traffic on the cross-Channel air services is showing a marked and satisfactory increase, as will be seen from the following table of passenger and goods traffic which passed through Croydon Aerodrome in the years 1921, 1924 and 1927 :—

Year.	Passengers. Nationality of Aircraft.							Goods.
	British.	Belgian.	French	German	Netherlands.	Others	Total.	Total value of merchandise imported and exported by air (exclusive of bullion).
								£
1921	5,256	630	4,352	—	480	13	10,731	571,191
1924	10,456	(no service)	5,619	216	1,559	8	17,858	1,350,960
1927	16,533	1,466	5,199	1,972	3,586	8	28,764	2,691,267

The fact that during 1927 imports and exports of bullion, gold and silver to the value of £7,740,962 (i.e., 10 per cent. of the total) were carried by air affords striking proof of the safety and regularity of the services across the Channel.

Notwithstanding the keen competition by the four foreign air lines operating to Croydon from various parts of the Continent, it will be seen from the above table that the British company, Imperial Airways Ltd., is carrying by far the largest number of passengers.

Intercommunication by air exists to-day between almost every large city on the Continent and is proving of great value in commerce. Particularly is this the case in Germany where encouragement has been extended to civil aviation by municipalities by the provision of municipal aerodromes at each centre of any importance.

In the absence of similar facilities in this country British industry cannot derive full advantage from air transport. Until more aerodromes are provided it will not be possible for merchants in this country to utilise aircraft, whether private or hired, for the speedy conveyance of their samples and documents either to Croydon, where they can connect with the cross-Channel air services, or direct to their destinations abroad. Until then the British business man will not be able to travel by air with ease and rapidity across country from one city to another and avoid the delays at present attendant on most cross-country journeys by rail.

The development of internal flying is in fact almost entirely dependent on the provision of aerodromes at large centres in this country. The civil flying club movement has done much to stimulate interest and foster enthusiasm in the air, but further progress is hampered by the lack of aerodromes and landing grounds.

The provision of aerodromes and ancillary services by the State mus necessarily, if only on the grounds of capital cost, be confined t terminal points on "trunk" routes. The establishment of a networ of aerodromes throughout the country to serve the general purposes o internal flying must devolve on local authorities, who may indee expect to benefit ultimately by the traffic and commerce which wil follow the provision of these facilities.

It is the opinion of the Council that every town of any importanc will, sooner or later, find it just as essential to possess well sited aerodromes as it does to-day to possess railway stations, roads, garages etc. Delay in making provision for aerodromes now may result eithe in land suitable for the purpose being built upon or its price becoming prohibitive. It should be borne in mind that municipal aerodromes no only provide the first essential for communication by air but, a open spaces established for all time, also go to meet the needs o public health in areas becoming more densely populated.

I am, therefore, to suggest that your Corporation should conside earnestly the advisability of establishing a municipal aerodrome wit as little delay as possible. The Council will, for their part, be glad on hearing further from you, to forward to you information concerning the general requirements for a municipal aerodrome and to advis you as to the suitability or otherwise of any sites your Corporation ma have under consideration for the purpose. (Signed) W. F. Nicholson.

WORLD'S RECORDS.

The Fédération Aéronautique Internationale has homologated the following World's Records :—

Class C (Aeroplanes).

Useful Load, 500 *kilos. Height* : (Germany)—Reginald Schinzinger, Dessau, Sept. 14, 1928, Junkers W.34 Monoplane, 420 h.p. Bristol Jupiter VII, 9,190 metres (30,143.2 ft.).

Useful Load, 1,000 *kilos. Height* : (Germany)—Reginald Schinzinger, Dessau, Sept. 14, 1928, Junkers W.34 Monoplane, 420 h.p. Bristol Jupiter VII, 7,907 metres (25,935 ft.).

Light Aeroplanes—*1st Category. (Two-seaters, weighing not more than* 400 *kilos.)*

Distance in a Straight Line : (Switzerland)—Capt. Hans Wirth and Miss Erika Naumann, Boblingen—Mieschkance (Poland), Oct. 16, 1928, Klemm-Daimler Monoplane, 20 h.p. Mercedes-Daimler, 1,305.500 kms. (810.715 miles).

Class Ca (Seaplanes).

Useful Load, 500 *kilos. Height* : (Germany)—Fritz Harder, Dessau, Nov. 6, 1928, Junkers W.34 Monoplane, 420 h.p. Bristol Jupiter VII, 7,458 metres (24,462.24 ft.).

Useful Load, 1,000 *kilos. Height* : (Germany)—Franz Kneer, Dessau, Nov. 17, 1928, Junkers W.34 Monoplane, 420 h.p. Bristol Jupiter VII, 6,389 metres (20,955.9 ft.).

HALF-A-MILLION MILES.—The Handley Page W.8b, named "Prince Henry," belonging to Imperial Airways Ltd., is here seen debarking passengers and goods at Croydon after completing 500,000 miles' of flying. This machine, which has two Rolls-Royce Eagle engines, has been in constant service for more than 4½ years, except for regular periodical overhauls.

AIR TRANSPORT BILL—LEGAL NOTICES.

In Parliament—Session 1928-9.

GREAT WESTERN RAILWAY (AIR TRANSPORT).

Notice is hereby given that application is intended to be made to Parliament in the present Session by the Great Western Railway Company (hereinafter referred to as "the Company") for an Act of which the principal subject matters will be as follows :—

1. The provision, owning, working and use by the Company of aircraft and the provision by them of air transport services for the conveyance of traffic of any description.

2. The establishment, maintenance and carrying on by the Company of aerodromes and any business subsidiary thereto.

3. Power to the Company and any company, body or person to enter into agreements with reference to the provision, owning, working and use of aircraft and aerodromes and other accommodation, the supply of aircraft and matters incidental thereto.

4. The provision of funds by the Company, and the holding by the Company of, and the guarantee by them of dividends or interest on, stocks, shares and securities for the purposes of any such agreement, and the application of funds by the Company for the purposes of the intended Act.

On and after the 21st day of December next printed copies of the intended Act may be inspected and copies obtained at the under-mentioned offices at the price of one shilling for each copy.

A Notice stating more fully the objects of the intended Act has been published or sent for publication in "The Times" of the 20th and 27th November instant.

Dated this 20th day of November, 1928.

A. G. Hubbard,
Paddington Station, W.2.
Solicitor.

Sherwood and Co.,
22, Abingdon Street,
Westminster, S.W.1.
Parliamentary Agents.

---

n Parliament—Session 1928-9.

LONDON AND NORTH EASTERN RAILWAY (AIR TRANSPORT).

Notice is hereby given that application is intended to be made to Parliament in the present Session by the London and North Eastern Railway Company (hereinafter referred to as "The Company") for an Act of which the principal subject matters will be as follows :—

1. The provision, owning, working and use by the Company of aircraft and the provision by them of air transport services for the conveyance of traffic of any description.

2. The establishment, maintenance and carrying on by the Company of aerodromes and any business subsidiary thereto.

3. Power to the Company and any company, body or person to enter into agreements with reference to the provision, owning, working and use of aircraft and aerodromes and other accommodation, the supply of aircraft and matters incidental thereto.

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Dated this 20th day of November, 1928.

R. Francis Dunnell,
4, Cowley Street,
Westminster, S.W.1
Chief Legal Adviser.

Sherwood and Co.,
22, Abingdon Street,
Westminster, S.W.1
Parliamentary Agents.

In Parliament—Session 1928-9.

SOUTHERN RAILWAY (AIR TRANSPORT).

Notice is hereby given that application is intended to be made to Parliament in the present Session by the Southern Railway Company (hereinafter referred to as "the Company") for an Act of which the principal subject matters will be as follows :—

1. The provision, owning, working and use by the Company of aircraft and the provision by them of air transport services for the conveyance of traffic of any description.

2. The establishment, maintenance and carrying on by the Company of aerodromes and any business subsidiary thereto.

3. Power to the Company and any company, body or person to enter into agreements with reference to the provision owning, working and use of aircraft and aerodromes and other accommodation, the supply of aircraft and matters incidental thereto.

4. The provision of funds by the Company and the holding by the Company of, and the guarantee by them of dividends or interest on, stocks, shares and securities for the purposes of any such agreement, and the application of funds by the Company for the purposes of the intended Act.

On and after the 21st day of December next printed copies of the intended Act may be inspected and copies obtained at the undermentioned offices at the price of one shilling for each copy.

A Notice stating more fully the objects of the intended Act has been published or sent for publication in "The Times" of the 20th and 27th November instant.

Dated this 20th day of November, 1928.

Wm. Bishop,
Waterloo Station, S.E.1.
Solicitor.

Sherwood and Co.,
22, Abingdon Street,
Westminster, S.W.1
Parliamentary Agents.

In Parliament—Session 1928-9.

LONDON MIDLAND AND SCOTTISH RAILWAY (AIR TRANSPORT).

Notice is hereby given that application is intended to be made to Parliament in the present Session by the London Midland and Scottish Railway Company (hereinafter referred to as "the Company") for an Act of which the principal subject matters will be as follows :—

1. The provision, owning, working and use by the Company of aircraft and the provision by them of air transport services for the conveyance of traffic of any description.

2. The establishment, maintenance and carrying on by the Company of aerodromes and any business subsidiary thereto.

3. Power to the Company and any company, body or person, to enter into agreements with reference to the provision, owning, working and use of aircraft and aerodromes and other accommodation, the supply of aircraft and matters incidental thereto.

4. The provision of funds by the Company and the holding by the Company of, and the guarantee by them of dividends or interest on, stocks, shares and securities for the purposes of any such agreement, and the application of funds by the Company for the purposes of the intended Act.

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A Notice stating more fully the objects of the intended Act has been published or sent for publication in "The Times" of the 20th and 27th November instant.

Dated this 20th day of November, 1928.

H. L. Thornhill,
10, Great College Street,
Westminster, S.W.1.
Chief Legal Adviser.

Sherwood and Co.,
22, Abingdon Street,
Westminster, S.W.1.
Parliamentary Agents.

Beale and Co.,
16, Great George Street,
Westminster, S.W.1.
Parliamentary Agents.

THE ROYAL AIR FORCE.

The London Gazette.

November 20.

Royal Air Force.

General Duties Branch.—The following are granted S.S. comns. as Plt. Offs. on probation with effect from Nov. 9 and with seniority of Nov. 2:—A. C. R. Mackenzie, E. C. Ridley.

Plt. Off. A. E. J. Pratt is promoted to the rank of Flg. Off. (Nov. 2); Flt. Lt. O. G. Gregson is placed on the retired list at his own request (Nov. 18); Flg. Off. F. H. S. David relinquishes his S.S. comn. on account of ill-health (Nov. 21).

The S.S. comns. of the following Plt. Offs. on probation are terminated on cessation of duty:—J. F. Macdonald (2nd Lt., H.L.I., T.A.) (Nov. 9); L. P. Thomas (Nov. 17).

The notifications which appeared in the *Gazette* of Nov. 6 concerning the following are cancelled:—J. A. Lawson (Lt., A.I.R.O.), W. H. E. Tew, E. C. A. Wheeler.

Stores Branch.—The following Plt. Offs. on probation are confirmed in rank and promoted to the rank of Flg. Off. (Oct. 15):—C. J. Cousins, C. Thripp, H. A. Wrigley.

Medical Branch.—Flt. Lt. A. Briscoe, M.B., is promoted to the rank of Sq. Ldr. (Nov. 19).

Chaplains Branch.—The Rev. C. A. B. Allen, M.A., is granted the local relative rank of Wing Cdr. whilst employed as Senior Chaplain ('Iraq) (Oct. 26); the Rev. G. H. Collier, M.A., relinquishes the local relative rank of Wing Cdr. on ceasing to be employed as Senior Chaplain ('Iraq) (Oct. 26).

Reserve of Air Force Officers.

General Duties Branch.—Plt. Off. R. H. Maw is promoted to the rank of Flg. Off. in the Special Reserve (Nov. 2).

The following officers are transferred from Class A to Class C:—Flt. Lt. G. E. Newton (Oct. 18); Flg. Off. W. C. Venmore (Aug. 26).

Flg. Off. M. R. Banks is transferred from Class C to Class A (Oct. 29); the commission of Plt. Off. on probation D. L. Hodge is terminated on cessation of duty (Oct. 20); the notification in the *Gazette* of Oct. 9, concerning Flg. Off. E. Fulford is cancelled.

Auxiliary Air Force.

General Duties Branch.—No. 600 (City of London) (Bombing) Squadron.—The following to be Plt. Off.:—D. L. Doyle (Oct. 11).

No. 601 (County of London) (Bombing) Squadron.—The following Flg. Off. to be Flt. Lt.:—E. D. W. Reid, M.B. (Oct. 1).

Appointments.

Week ending November 26.

General Duties Branch.—Group Captains K. G. Brooke, C.M.G., to R.A.F. Depot, Uxbridge, 28/10. A. W. Bigsworth, C.M.G., D.S.O., A.F.C., to H.Q., Coastal Area, for duty as Chief Staff Officer, 3/11.

Wing Commander J. McCrae, M.B.E., to Armoured Car Wing, 'Iraq, to command, 21/10.

Squadron Leaders C. J. Mackay, M.C., D.F.C., to R.A.F. Depot, Uxbridge, 28/10. J. J. Breen, to No. 84 Sqdn., 'Iraq, 22/10. F. J. Vincent, D.F.C., to No. 45 Sqdn., Middle East, 30/10. J. H. Green, to H.Q., R.A.F., Transjordan and Palestine, 27/10. A. Durston, A.F.C., to H.Q., Cranwell, 13/11. P. A. Shepherd, to H.Q., Inland Area, Stanmore, 7/11.

Flight Lieutenants E. H. Searle, to No. 23 Sqdn., Kenley, 12/11. R. de L. Stedman, to C.F.S., Wittering, 20/11. J. G. Murray, to No. 406 Flight, Donibristle, 15/11. N. W. Wadham, to No. 216 Sqdn., Egypt, 4/11. A. Rowan, to R.A.F. Depot, Egypt, 4/11. C. B. Greet, to No. 14 Sqdn., Palestine, 7/11. E. M. Drummond, to No. 84 Sqdn., 'Iraq, instead of to H.Q., 'Iraq Command, as previously notified, 20/10. N. V. Wrigley, to C.F.S., Wittering, 28/11. W. J. Seward, to H.Q., 'Iraq Command, 15/11.

Flying Officers A. R. Ward, to No. 442 Flight, China, 13/11. T. B Prickman, to No. 45 Sqdn., Middle East, 27/10. M. A. Platts, to No. 2 Armoured Car Coy., Middle East, 30/10. C. Warsow, to No. 14 Sqdn., Middle East, 3/11. H. L. Drake, to No. 5 Sqdn., India, 16/10. C. A. C. Patton, to No. 45 Sqdn., Egypt, 3/11. N. Young, to R.A.F. Station, Donibristle, 10/11. A. L. Ottway, to R.A.F. Depot, Uxbridge, 11/11 H. H. V. Tristem, to R.A.F. Depot, Uxbridge, 13/11. V. S. Bazalgette, to No. 13 Sqdn., Andover, 12/11.

Pilot Officers G. E. E. Singleton, to No. 14 Sqdn., Middle East, 27/10. D. Menzies, to No. 45 Sqdn., Middle East, 28/10. R. David, to R.A.F. Base, Kai-Tak, China, 13/11. The undermentioned are posted to No. 4 F.T.S., Middle East, with effect from 15/11:—A. H. Abbott, F. S. Barron, A. G. M. Cary, C. B. Field, E. G. Granville, N. R. G. Hunter, R. I. Johnson, H. L. McCulloch, R. M. Messiter, G. F. P. O'Farrell, O. J. O'Hara, C. E. W. N. C. Pelly, C. Sarsfield-Samson, R. W. Wallace, T. E. Whittome, A. C. R. Mackenzie, E. C. Ridler.

Medical Branch.—Squadron Leader R. J. Aherne, M.C., to Palestine General Hospital, 1/11.

Flight Lieutenants E. J. Jenkins, to No. 14 Sqdn., Middle East, 1/11. R. G. Freeman, to R.A.F. Depot, Middle East, instead of to H.Q., Middle East, as previously notified, 20/10. F. W. Goodread, to H.Q., A.D.G.B., Uxbridge, 27/11. T. J. D. Atteridge, to Central Medical Establishment, 1/12. G. M. Anderson, M.B., to R.A.F. Station, Donibristle, 14/12.

Flying Officers E. P. Carroll, to Station H.Q., Hinaidi, 27/10. B. A. Porritt, M.B., to Station H.Q., Cattewater, 3/12. J. L. Groom, to R.A.F. Base, Calshot, 27/11. N. M. Jerram, to E. and W. School, Flowerdown, 27/11. G. W. Paton, M.B., to R.A.F. Station, Upper Heyford, 27/11. G. O. Williams, B.Sc., to No. 5 F.T.S., Sealand, 27/11.

Stores Branch.—Flight Lieutenants W. Sutherland, M.B.E., to Armoured Car Wing, 'Iraq, instead of to H.Q., 'Iraq Command, as previously notified, 20/10. L. H. Hillier, to R.A.F. Depot, Uxbridge, 31/10.

Flying Officers E. G. M. Charleson, to No. 4 F.T.S., Middle East, 30/10. M. H. Jenks, to H.Q., Wessex Bombing Area, Andover, 6/11. M. M. McMullan, to Station H.Q. and Storage Section, Andover, 5/11.

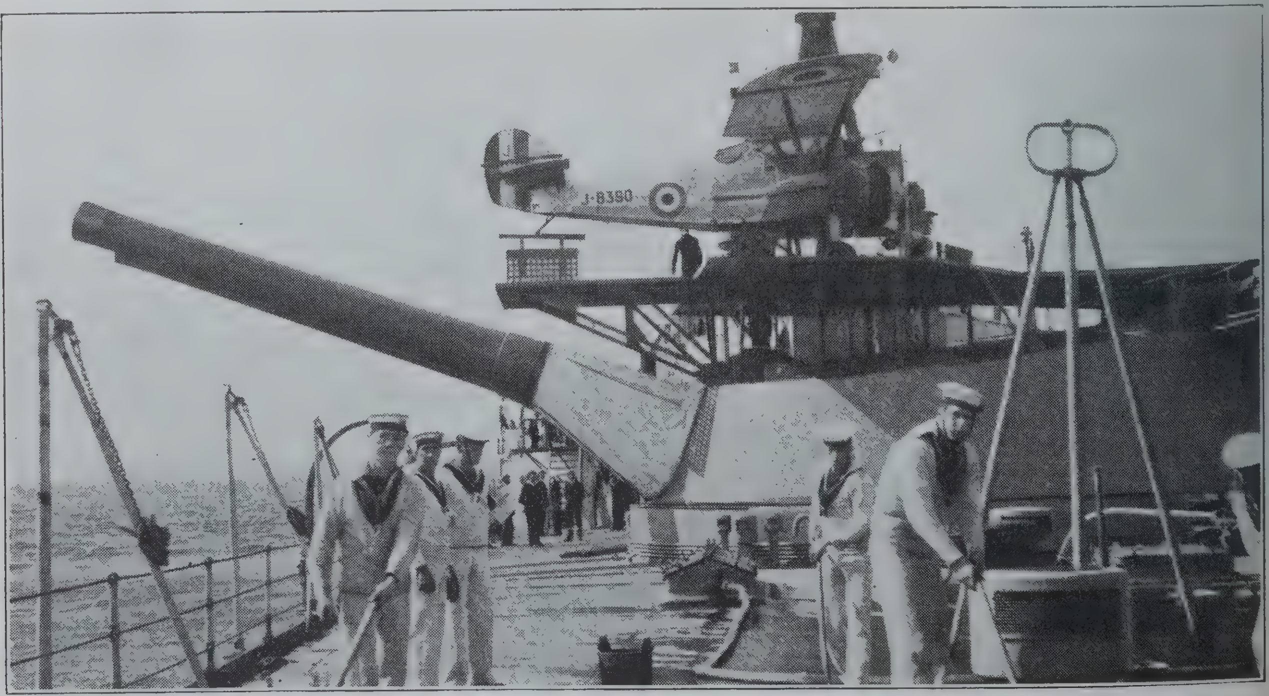
Accountant Branch.—Flying Officers R. T. Carter, to No. 6 Sqdn., 'Iraq, 6/11. J. P. Cave, to H.Q., Middle East, 2/11. J. H. S. Richards, to No. 84 Sqdn., 'Iraq, instead of to Station H.Q., Hinaidi, as previously notified, 20/10.

A Fatal Accident.

The Air Ministry regrets to announce that as the result of an accident at Grantham to an Avro machine of No. 3 F.T.S., Grantham, on Oct. 31, Flt. Lt. Gordon Archer, the pilot of the aircraft, sustained injuries from which he died in hospital on Nov. 24. No. 346681, L-AC. Robert Wallace, the passenger in the aircraft, was slightly injured.

The Fairey Long-Range Monoplane.

A successful trial flight of the new Fairey monoplane (Napier series XI engine) was made at Northolt during the week ending Nov. 17. The Fairey monoplane has been built with the object of gaining data on endurance problems and long-range efficiency.



FLEET CO-OPERATION.—An Armstrong-Whitworth Siskin (Jaguar engine) mounted on a special platform on board H.M.S. "Repulse" during the Fleet Operations last Summer. This type of machine is not part of the regular equipment of the Fleet Air Arm, R.A.F.

CIRRUS ENGINE

ANOTHER TRIUMPH FOR BRITISH ENGINEERING.

In proof of the claim of the makers that the "Cirrus" is the best and most reliable light aeroplane engine in the world, the strongest group in finance, commerce and engineering that has ever been formed in the United States for such a purpose has, after exhaustive examination and consideration, acquired the right of manufacture of

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In the trials at Northolt the machine was flown by Sq. Ldr. A. G. Jones-Williams, M.C.

Future trials will be made from the R.A.F. aerodrome at Cranwell, Lincolnshire.

Headquarters, R.A.F., India.

All correspondence to the Air Officer Commanding, R.A.F., India, will be addressed, in future, as follows :—

The Air Officer Commanding, R.A.F., Imperial Secretariat, South Block, New Delhi, India.

A Report of a Mahsud Rising.

A *British United Press* message from Calcutta, dated November 19, states :—

The reforms instituted by King Amanullah of Afghanistan after his return from his European tour have caused an upheaval on the north-west frontier of India.

Two British subjects have been kidnapped and the Royal Air Force is reported to have been in action against the turbulent tribesmen.

The fighting so far has not been on an extensive scale, but it is possible that arrangements will be made whereby Afghan troops will co-operate with the Indian forces to punish the offenders.

It was the Mahsud tribe that kidnapped the two British subjects.

While the reforms instituted by King Amanullah have been received by most of his subjects without protest and with a large section with approval, a number of clans have strongly resented interference with age-long customs and dress, and it is this section which has revolted.

Flying Boats Wrecked.

During the gale on Nov. 23 two Supermarine Southampton flying-boats belonging to No. 480 (Coastal Reconnaissance) Flight, R.A.F., collided at their moorings at Portland and were so damaged that they both sank.

An attempt to salve them is being made.

Sir Edward Ellington's Accident.

The Baghdad correspondent of *The Times*, in a message dated Nov. 21, states :—

Air Vice-Marshal Sir Edward Ellington, who has just handed over his duties as Air Officer Commanding, 'Iraq, to Air Vice-Marshal Sir Robert Brooke-Popham, had an accident yesterday while flying across the desert from Baghdad on his way to England, travelling as passenger in a D.H.9a two-seater aeroplane. A landing become necessary near Hit, on the Euphrates, owing to foggy weather, but the ground was sodden after heavy rain, and the machine, on landing, turned completely over on its nose.

Sir Edward Ellington was bruised and shaken, but the pilot Flt. Lt. Brook, Personal Assistant to the A.O.C., was unhurt. Sir Edward was conveyed by car to Ramadi, and thence by air to hospital in Baghdad. He is making excellent progress, but will have to remain here for about a week. During the last two years Sir Edward has flown thousands of miles over 'Iraq, and his bad luck in meeting with his first accident on his way home has aroused much sympathy.

The R.U.S.I. Gold Medal Essay.

The subject of the Gold Medal Essay of the Royal United Service Institution for 1929 is "The Rôle of Aircraft in Coast Defence."

Competitors must be members of the Institution or persons eligible to become members.

Full particulars of the Essay Competition appear in the November issue of the journal of the *Royal United Service Institution.*

The R.A.F. in Parliament.

DIRECTION FINDING.

In the House of Commons on Nov. 21, in reply to a question by Mr. Day, the Secretary of State for Air said that the estimated cost of the experimental beacon for the rotating loop direction-finding system which was being erected at Orfordness was £5,000. The building work involved would be done by contract, the transmitting apparatus was being made at the Royal Aircraft Establishment, Farnborough, and would be erected by the personnel of that establishment.

THE ROYAL AIRCRAFT ESTABLISHMENT.

In the House of Commons on Nov. 21, in reply to a question by Mr. Kelly, the Secretary of State for Air said that the industrial staff employed at the Royal Aircraft Establishment on July 1, 1928, was 832 men and 23 women; and on Oct. 1, 1928, 841 men and 26 women.

No. 55 Squadron, R.F.C. and R.A.F. Reunion,

The tenth annual reunion dinner of No. 55 Squadron, R.F.C. and R.A.F., will be held at the Trocadero Restaurant on Dec. 1 at 7.30 for 8 p.m.

Several of the original members of the Squadron have promised to attend the dinner, including Wing Cdr. J. E. A. Baldwin, D.S.O.

The Committee are anxious to make this tenth reunion a special success and to beat the previous record attendance of 36.

Application for tickets should be made as soon as possible to L. B. Goodyear, 2a, Spencer Road, South Croydon, Surrey.

SPORT IN THE R.A.F.

The R.A.F Squash Racquets Association.

To stimulate interest in the game of squash racquets and, ultimately, if possible, to form a team to challenge the other services, the R.A.F. Sports Board has approved the formation of a R.A.F. Squash Racquets Association under the presidency of Air Vice-Marshal C. L. Lambe, C.B., C.M.G., D.S.O.

The Hon. Secretary and Treasurer of the Association is Flt. Lt. E. F. Waring, D.F.C., H.Q., Coastal Area, Royal Air Force, Tavistock Place, London, W.C.1, from whom full particulars may be obtained.

Association Football.

R.M.A., Woolwich, v. R.A.F. Cadet College, Cranwell :— This match was played at Woolwich on Nov. 17, and resulted in a win for Cranwell by 2 goals to 1.

Cranwell lost the toss and thus had to face the wind and play "uphill" for the first half. In spite of this they attacked early and succeeded in keeping Woolwich in their own half for the first 15 minutes. A break away by the Shop's inside right and a misunderstanding between two of the Cranwell defence resulted in the Shop opening the score.

Giles equalised shortly afterwards, from an exceptionally well-placed pass from Richards. The remainder of the play for the first half was confined to mid-field.

On the resumption of play, Cranwell began to press, but their forwards were weak and erratic in shooting. Richards scored the final goal after some good inside forward play.

Woolwich only endangered Cranwell's goal on two occasions in the second half.

The game was well contested, although the football was not of a high standard. Cranwell were faster on the ball and played more as a team than Woolwich.

The Cranwell team were :—F. C. Sturgiss (Capt), L. Bowyer, A. G. Teideman, H. A. Jowad, R. K. Niblett, B. T. Shelley, H. B. Wrigley, F. Wickes, C. J. Giles, G. Richards, D. Lane.

SHOOTING IN IRAQ.—No. 55 (Bombing) Sqdn. Rifle and Pistol Teams, winners of the 'Iraq (R.A.F.) Rifle and Pistol Cups. On the left, the Rifle Team, from left to right (standing), L=AC. F. A. Kelly, Cpl. J. G. Bowler, L=AC. T. F. Warren, L=AC. W. H. Jones, L=AC. Mounter. (Seated) Flt. Sjt. F. E. Boyce, Flt. Lt. V. S. Parker, Sjt. L. Muton. On the right the Pistol Team, L=AC. F. A. Kelly, Flt. Lt. V. S. Parker, Sq. Ldr. A. H. Peck, D.S.O., M.C., Flt. Sjt. Barleycorn.

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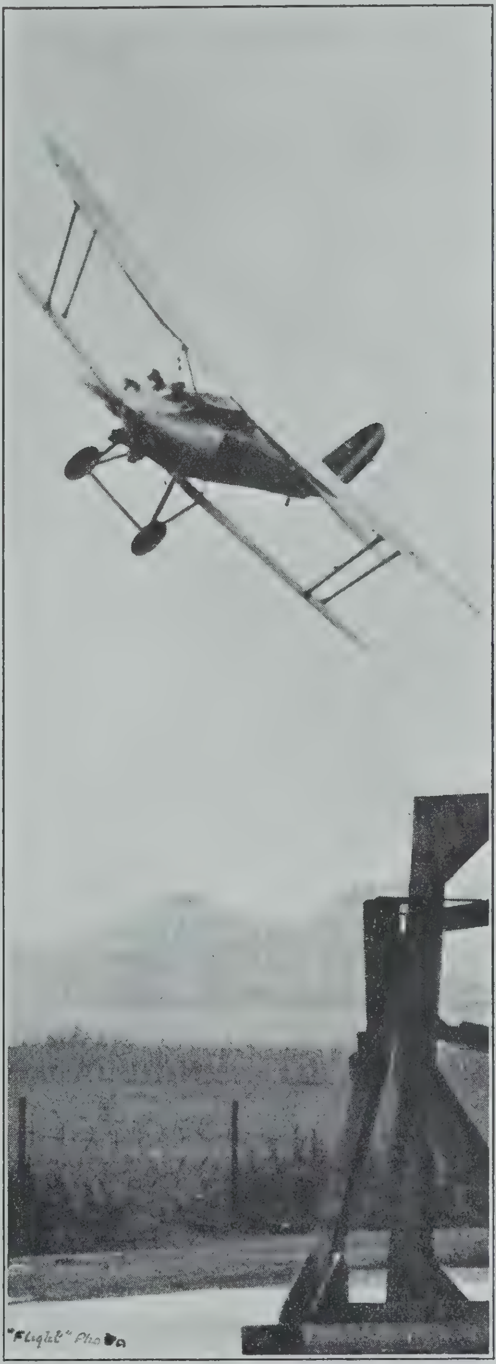

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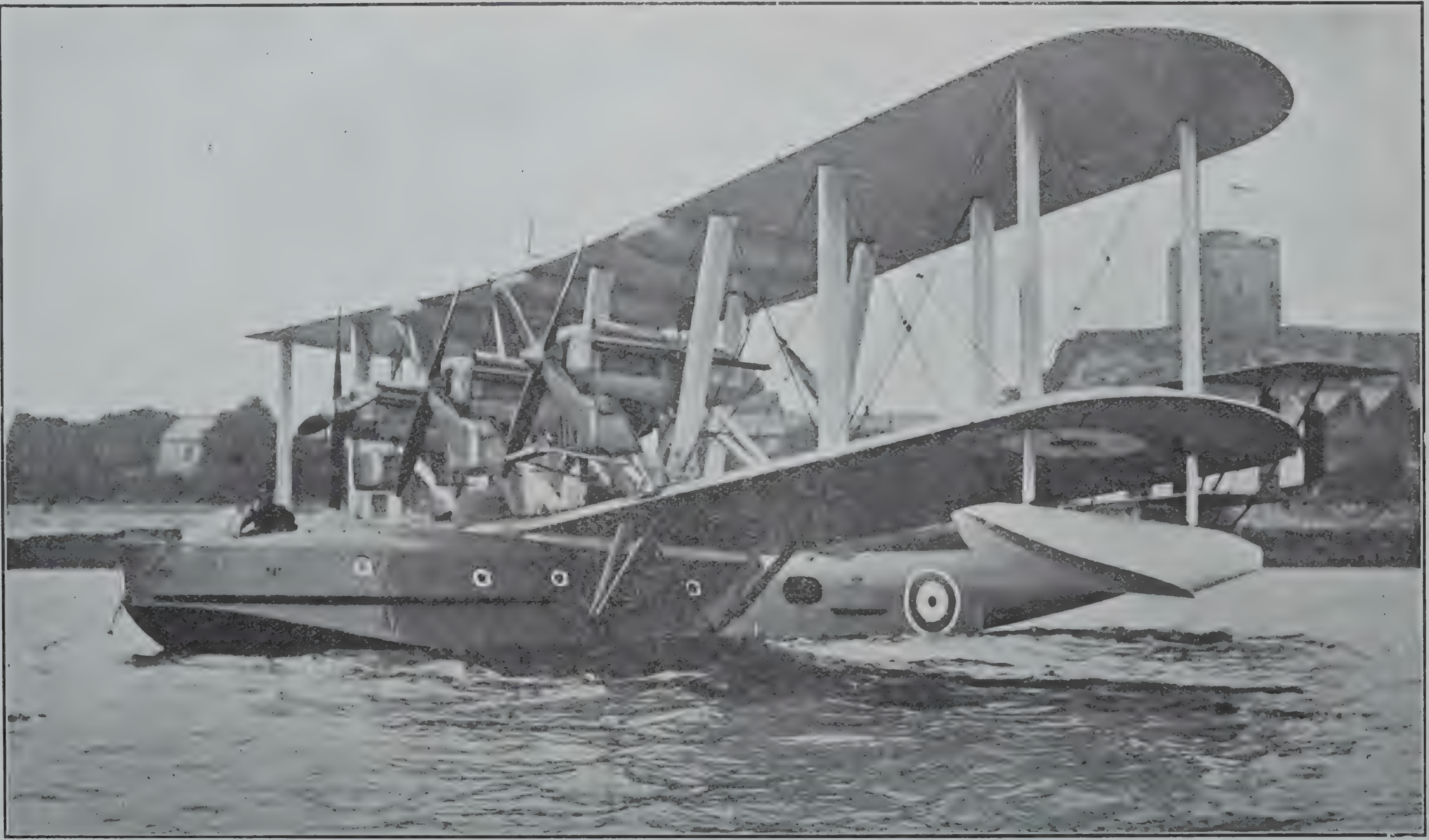
Telegrams: "Aviation, Bristol."
Telephone: 3906 Bristol.



THE 2,100 H.P. METAL-HULLED BLACKBURN "IRIS" FLYING BOAT

Commenting on his 17,000 miles experimental flight to India and back in an "Iris II" flying boat, the Under-Secretary for Air stated that "From every point of view the flight was a great success and the machine behaved splendidly." Before starting for India this 14-ton aerial-cruiser flew from Plymouth to Hull without the centre engine.

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Head Office and Works: OLYMPIA, LEEDS, YORKSHIRE. *London Office:* AMBERLEY HOUSE, NORFOLK STREET, STRAND, W.C.2

AERONAUTICAL ENGINEERING
SUPPLEMENT TO "THE AEROPLANE"

THE CONSTRUCTION OF RIGID AIRSHIP R101.

By W. H. Sayers.

A certain amount of information concerning the design of the rigid airship R101, which is now largely erected at the Royal Airship Works, Cardington, has been published recently, and it has for some time been common knowledge that this particular ship is in many respects a striking departure from any previous airship in regard to methods of construction.

So far however nothing has been said in public to indicate that the many novel features of this ship owed their being to any other source than the Design Staff of the Royal Airship Works, or indeed that any other concern had played an important part in the production of this ship. It has now become permissible to disclose something of the history of the production of this airship and to describe the processes of manufacture which have been employed.

Since 1924 Boulton and Paul Ltd. of Norwich have been engaged on research design and constructional work in connection with the State airship. They were selected for this work because of their well-known and successful development of light metal structures for aeroplanes.

In 1924 the firm designed and constructed two experimental longitudinal girders for the ship. These were of the type actually incorporated in the ship to-day, and embodied several features developed by Boulton and Paul for aeroplane construction, and in particular their process for continuously heat-treating members formed from steel strip after forming. It was this process—the result of several years of previous experiment—which made it possible to use stainless steel in airship construction.

The next stage was the construction of an experimental section of the airship body to test out the proposed details of construction, and also to check the soundness of the type of stiff transverse frames proposed by the Royal Airship Works. This test section was subjected to rigorous loading tests, and proved eminently satisfactory.

Finally the contract for the complete hull framework, with fins and rudders, was entrusted to the firm by the Air Ministry.

The actual design of the structure was carried out roughly on the following lines. The Royal Airship Works produced stressed diagrams of the various sections of the ship whereon each member was represented by a line. From the geometry of the diagrams and the loads in each individual member Boulton and Paul's produced the actual members to withstand the specified loads. To ensure the necessary close collaboration between the design staffs at Boulton and Paul's and at Cardington Mr. J. D. North, Director and Chief Engineer of Boulton and Paul, was appointed consultant on light metal construction to the Director of Airship Development.

It should be made clear that Boulton and Paul are responsible for the strength of the complete ship only to the extent of producing members that will withstand the loads specified by the Royal Airship Works, and that specimens of all types of members designed by them have been tested to ensure that they do meet those requirements.

An outline diagram of the framework of R100, which is reproduced, will give an idea of the part played by Boulton and Paul in the manufacture of the ship. Those parts blocked out in solid black were neither made nor designed by the firm. All the rest is of their detail design and manufacture.

(It will of course be understood that this does not imply that the work of the design staff at Cardington—comprising as it has aerodynamic design, the very arduous stress work involved in such a structure, and all work in connection with power plant, equipment and accommodation—is to be regarded as of minor importance. It is of course as vital as the detailed structural design.)

The extent of the design work carried out can scarcely be appreciated by anyone not actually familiar with the particular job. The hull form of R101 is a body developed from an ellipsoid. The curvature of the longitudinals varies continuously throughout the length of the ship, and the angles at the various joints varies from frame to frame.

As frame members had all to be manufactured at Norwich and assembled at Cardington without fitting, and assembly was to be made by close-fitting bolts, extreme accuracy in the setting out of the lengths of all members, and of the angles of all joints had to be secured. To ensure this the dimensions of individual members were worked out from the equation to the body curve. This detailed geometry had in many cases to be calculated to fifteen significant figures, which bars the use of slide rules or tables of logarithms.

In order to ensure trouble free assembly accuracy of design had to be accompanied by an equivalent accuracy in the manufacture of individual components. As there existed no previous standards by which permissible tolerances on members of the particular class and form could be estimated, very close limits were fixed.

Main longitudinal guides, 45 ft. long, were required to be within ± .030 inches absolute length, with a permissible variation between individual members of the same nominal dimensions of .020 inches. Main radial struts 11 ft. long were required to be within ± .015 in. of absolute length with maximum differences between individual similar members of .005 inches. In practice it has been found possible to keep within about one-third of the maximum limits in all cases except those of the main longitudinals.

Thanks to this accuracy assembly of finished girders on the ship has gone on without a hitch. At the moment some 500 ft. length of frame has been put together at Cardington, and had there been any serious errors of design or manufacture they would long ago have been detected.

General Description of the Hull Frame.

The main hull frame of R100 consists of a series of main longitudinal girders, fifteen in number, except over the section carrying the cruciform tail, where the number of longitudinals is increased to sixteen. These longitudinals are in sections about 45 ft. long each. Each section is jointed at each end to a transverse frame ring some ten feet wide.

The main longitudinals are triangular section girders, with three stainless steel tubular booms, fairly closely spaced tubular struts between booms, and swaged rod cross-bracing, generally similarly arranged to the normal wire-braced type of aeroplane fuselage.

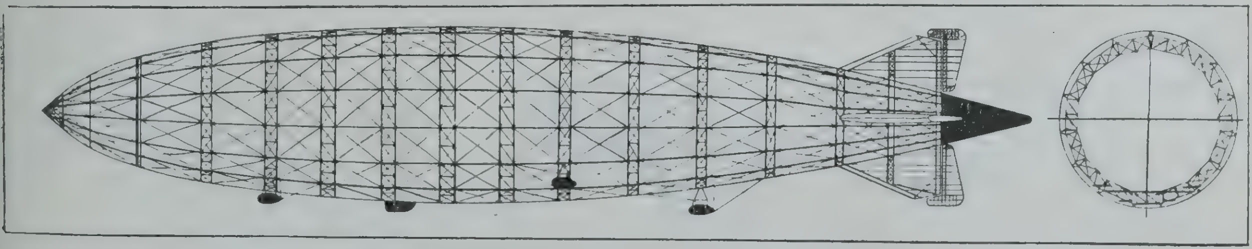


Fig. 1. Frame Diagram of R.101. Those parts shown in solid black on this figure were not made by Boulton and Paul Ltd.

The transverse frames are polygons, each composed of three "ridge girders" arranged at the angles of a triangle with its base on the outer circumference of the hull and its apex inboard. The outer ridge girders are connected directly to the end of short (10 ft.) sections of girder similar in form and construction to the main longitudinals and the inner ridge girders are tied to the ends of the same longitudinal sections by radial struts.

The three ridge girders, and the multiplicity of radial struts, are all of triangular section, with bulbous booms, and stamped duralumin webs. These booms are drawn from stainless steel, for the ridge girders and from duralumin for the radial struts.

Each panel in the frame between two consecutive frames and two consecutive longitudinals is cross-braced by steel cables.

Between main longitudinals there are intermediate light longitudinals—or "reefing booms"—whose function is to support the outer cover of the ship.

Because the form of the ship is one of continually changing curvature, the main longitudinals between each frame have to be braced up to their own particular camber, and the end fittings have to be set in each case for the correct angle of intersection with the frame ring. This angle changes at every frame. This means that over each section there is a specific difference in length between the inner booms and the outer boom of each longitudinal which varies from section to section.

In the same way the angle at the joints of ridge girders and longitudinals changes at every frame, and so do the angles of the bracing cables. In a structure as light as is this it is absolutely essential to avoid local stresses caused by eccentric loadings and to secure this the correct angles of all wiring lugs at these joints have to be ensured to within very narrow limits.

A glance at the outline diagram of the frame will give some idea of the number of different joints involved in this frame, and when it is remembered that all the joints in any one frame differ from those in all the other frames the magnitude of the design work undertaken by Boulton and Paul may be gauged.

Despite these difficulties of design the number of essentially different types of components and fittings used has been kept down to a remarkable degree.

MATERIALS OF CONSTRUCTION.

For the closed joint tubes of the main longitudinals and for the booms of the ridge girders a stainless steel containing Carbon 0.16% to 0.22%, Silicon not more than 0.5%, Nickel not more than 1.0%, and Chromium 12.5% to 14% is used. This material is drawn in the case of tubes, and rolled for the ridge girder booms, to the sections shown in Fig. 2 in the soft condition, and is thereafter hardened and tempered. In the final condition it has a proof stress not less than 65 tons/sq. in., an ultimate stress of 88 to 95 tons/sq. in., and may be bent cold round a radius of three times its own thickness without cracking.

A temperature of from 960° C. to 1,000° C. is required for hardening this material, which is also somewhat slow and variable in its response to heat treatment. To control the condition of the finished material it is necessary to test samples from every cast of steel, from every gauge of strip and for every annealing heat for both proof stress and ultimate stress. These test pieces are thereafter tested in a Rockwell hardness tester, and the results are used to check the hardness tests made on test pieces cut from every length of rolled or drawn section used in the ship.

Fittings and wiring plates are made from sheets of an Austentitic stainless steel containing about 10% Nickel and 16% Chromium, with a proof stress of about 50 and an ultimate strength of about 60 tons per sq. in. This material is in general sawn to shape and finished by hand. As it depends on cold working for its physical qualities it is necessarily worked in the hardened state.

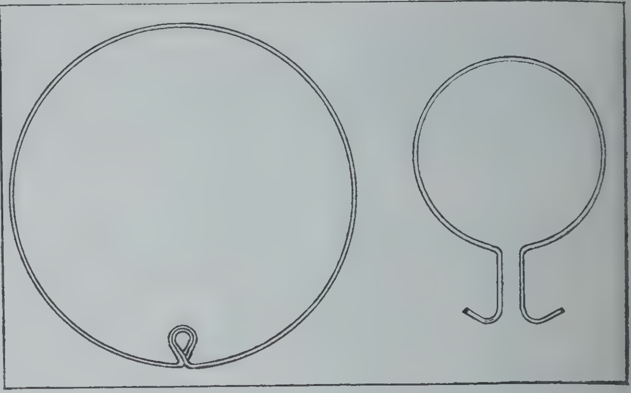


Fig. 2. Drawn Tube (left) and Rolled Bulb Sections used on R.101. Both stainless steel and duralumin are produced in these sections.

Hardened and tempered solid drawn steel tubes of the composition employed for axle tubes are also used in certain places. These are usually of large diameter and thin gauge and present serious difficulties in the process of heat treatment to avoid distortion. These tubes were manufactured by the Reynolds Tube Co. Ltd. of Birmingham.

[There is interest in noting that the Reynolds firm were about the first of the Birmingham tube firms to specialise on swaged or butted tubes for bicycles and they are to be congratulated on being to-day well to the fore in the latest method of transport.—ED.]

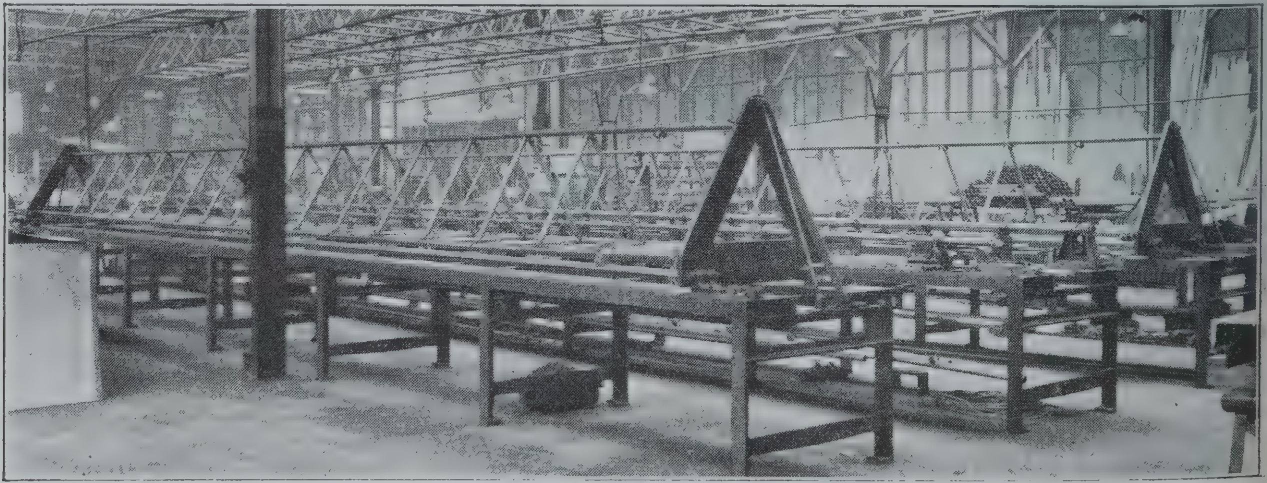
Duralumin is used for the booms of the radial girders in the same section as those in steel used for ridge girders, and also in the form of close joint tubes similar to those of the booms of main longitudinals. In stamped sheet form it is used for the webs of ridge and radial girders. Before forming this material is heated to 480° C., quenched, and all work done on it is completed during the first two hours of age-hardening.

Duralumin die-stampings are employed for the end joints between ridge girders and longitudinals.

Die-castings of aluminium-silicon alloy are used for tube sockets and similar purposes. These can be produced to a high degree of dimensional accuracy in a very sound and ductile material.

High-tensile heat-treated steel stampings, of a minimum tensile stress of 55 tons per square inch, are used for shackles for the bracing wires in main longitudinals and for similar purposes.

Zinc-cadmium solder (82.6% cadmium, 17.4% zinc) is used for fastening the ends of the main bracing cables into the terminal sockets. These terminals are of the coned type, the cable end being allowed to spread out in the coned socket, which is then filled with the solder. The cables are galvanised, the sockets zinc coated, and rosin alone is used as a flux. The solder has a sheer strength of 7 tons/sq. in., adequate to prevent shearing or extrusion under full load in an abnormally short and light socket, and it is electrochemically so nearly neutral in regard to either cable or socket as to cause no risk of electro-chemical corrosion.



Main Longitudinal Girders of R.101 in the Erecting Jigs at the Boulton and Paul Works.

"Our training aircraft must embody certain essentials"

"While efficiency must never be sacrificed for any consideration, it is only by economy in operation that our training schools can efficiently fulfil their function. In other words, they must turn out first class pilots without the necessity of an army of ground staff and the extensive establishment involved by large high-powered machines, which are quite unnecessary and, in fact, undesirable for training. Although I want the latest and the best in the interests of efficiency, I refuse to entertain any machine which has not been proved in the hard school of arduous service. I am looking for a machine of good performance ; it must be economical in first cost and upkeep and amply robust for use under severe service conditions, without the wasteful need of constant repairs and replacements. This machine must also cut out the necessity for an intermediate training type, so that pilots can pass from it direct to high performance fighters and scouts. In other words, it must be normal in every way, it must have no 'tricks' of its own, and it must have the same 'feel' and lively response to the controls as full sized service machines. Standardisation, too, is most important and, by the way, it will have to train our seaplane pilots, so a machine with an alternative float undercarriage is essential."

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PROTECTION AGAINST CORROSION.

The greater part of the steel used in the ship is of stainless type and needs no protection. All steel members not of stainless material are zinc-coated by a modified and controlled Sherrardizing process. This produces a coating of zinc which can be controlled in thickness to within limits of .0003 to .0006 in., which is well alloyed to the steel and non-porous by any tests yet devised.

All duralumin parts are treated by the anodic oxydisation process and then coated with lanoline. This process is well known, but its effectiveness depends on very close control of the loading of the plant for current density, the rate of voltage rise, the duration of the "soak" at the film-forming voltage, and the concentration of the chromic acid bath.

Conditions to give the best results vary with the exact composition of the allow used, and the state of the surface, whether machined, or stamped, or rolled, and only large experience permits the attainment of uniformly satisfactory results.

Though primarily a protective measure, this process has proved valuable as a means of detecting flaws, cracks, and the like undiscoverable by other means. Any such defects are quite unmistakably stained by the chromic acid and made visible.

The aluminium-silicon alloy die-castings have been found to possess excellent anti-corrosive qualities and need no special treatment.

METHODS OF MANUFACTURE OF MEMBERS.

Drawn sections: These include closed-joint tubes of both stainless steel and duralumin, of the section shown in fig. 1 (left). The material is supplied by the steel makers in the form of strips of the required gauge in the soft condition. It is first cut to width in a special strip cutter, and then passes to the draw-bench. The first operation is the turning up of the edges which are to form the locked joint. It is then passed through dies which successively curl the initially flat strip to the desired circular section. The closing of the joint is effected by drawing between a circular die and a mandrel provided with a tapered, formed groove which turns the inwardly projecting edges over to their final shape.

In stainless steel the drawing operations can be carried on only at a relatively slow rate because this material is liable to seize up on the dies at high speeds, and there are limitations to the lubricant which can be used imposed by the subsequent hardening process. A lubricant which formed a carbon deposit on heating might lead to carburisation of the steel and destroy its qualities.

The tube on leaving the forming dies is perfectly straight, round, and free from twist. It passes then to the hardening bench, which is another draw-bench on which is mounted an electric resistance muffle furnace. Before entering the furnace it passes through a circular die adjusted to produce a definite but not great degree of friction. This ensures that the tube shall be kept straight under the draw-bench pull. It enters the furnace, is raised to hardening temperature, emerges and is air-cooled, and finally passes through a circular die through which cold water is passing.

From the hardening bench it goes to a tempering bench—which is similar to the hardening bench except that two furnaces are mounted upon it in series.

Control of hardening and tempering is secured by the control of the furnace temperature, and of the speed of passage of the tube through the furnace. The use of twin furnaces for tempering is merely a method of increasing the speed of passage of the tube through the process.

The furnaces are fitted with automatic temperature controls which keep the temperature during any one heat uniform at the desired level to within very close limits.

Tubes of up to 70 ft. in length can be produced on the present draw-benches. Solid drawn tubes of any kind are not obtainable in such lengths.

Duralumin tubes are formed by the same process except that hardening and tempering are unnecessary and that much higher speeds of operation are possible.

Rolled sections: Sections not completely closed—such as the boom of ridge and radial girders (Fig. 2 right)—are rolled to shape, passing consecutively a series of rollers in the one pass. Much higher speeds of working are possible with rolling methods but the process is incapable of forming certain types of section. Rolled steel sections pass to the heat treating draw-benches for hardening and tempering.

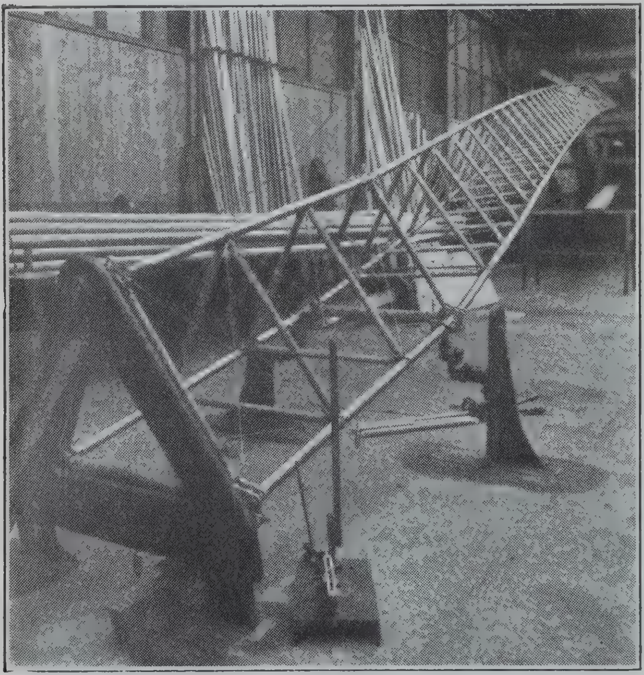
Cutting steel tubes to length is accomplished by the "toothless saw," a plain mild steel disc running at high speed which raises the temperature at the point of contact with the article being cut to such an extent as to render it plastic. This tool produces a perfectly clean and true cut on the hardest metal.

Ridge and radial girder webs: The webs of these girders are strips of duralumin sheet about eight inches wide with punched and flanged lightening holes and slightly turned-up edges. These turned-up edges pass between the lips of the boom sections (Fig. 2 right) and are rivetted in place. Two thicknesses of sheet are used in each web in the steel-boomed ridge girders and one in the duralumin-boomed radial girders. The forming of these is carried out in two stages. In one the lightening holes are pressed (one central hole and two of the surrounding triangular holes at a time), and in the second flanging occurs.

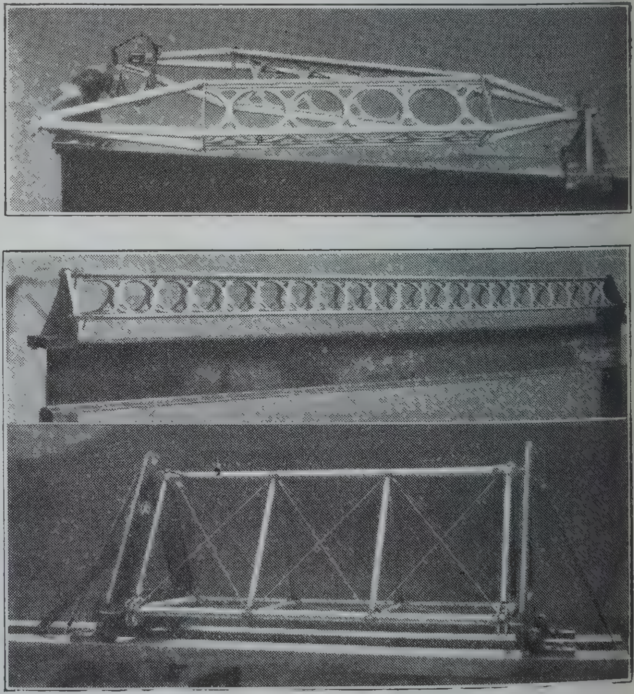
ASSEMBLY OF GIRDER UNITS.

In the case of main longitudinals, the tube booms are cut approximately to length, marked off and drilled for the bolts which locate the strut sockets and carry the bracing wire shackles. These are then attached to the tubes, and the girder is assembled on a jig.

This consists of two triangular end plates mounted on channel steel bases with accurately surfaced upper faces. These end plates are adjustable as to their angle with the base, for position along the base, and are provided each with three lugs accurately spaced to represent the joint-lugs on



This photograph shows one of the special twisted longitudinals used in the hull where it changes from fifteen to sixteen sides.



Here are shown, top to bottom: A double radial girder, a ridge girder, and a short frame longitudinal all in their erecting jigs.

ROLLS-ROYCE

AERO ENGINES

"Those who saw the beautiful 'Wizard' Monoplane fitted with this (Rolls-Royce) Engine leap skyward when the pilot opened his throttle gained some idea of what the 'F' Engine enables designers to accomplish."—From The Daily Mail, 2nd of July 1928

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the transverse frame rings of the ship. These end plates are set each to the angle between frame and chord of the longitudinal girder which will occur in the ship for the particular girder to be assembled. The fork end sockets are inserted into the tube booms, dowelled into the lugs of the jig, and the girder as a whole is trued up by the wire bracing to the required curvature, which is set by a series of adjustable jacks along the base of the jig supporting the two lower booms.

When the girder is correctly trued up, the booms and fork ends are drilled through in place on the jig, and rivetted.

Similar methods are used for the ridge girders. The three booms are mounted on a spacing jig whose end plates carry plugs at correct centres, which enter the booms, and these are in addition supported by intermediate steady rings. The boom flanges and the duralumin webs are then drilled in place and rivetted, thus ensuring truth of assembly.

The fork-end boom terminals are then slipped into the booms, the whole assembly is mounted by these fork ends in a jig similar to that employed for the main girders, and booms and fork ends drilled through and rivetted in the jig.

Joints between ridge girders and longitudinals are made by means of duralumin die-stampings. These carry three lugs to take the fork-ends on the ridge girders and two lugs to bolt between fork-ends on the longitudinals. Relatively to the ridge girder ends the lugs for attachment to the longitudinals are subjected to rotation about two axes, the amount of such rotation varying from frame to frame.

To meet these conditions the original stampings are made with enough metal to allow machining to any of the necessary finished dimensions, and a series of adjustable jigs have been provided which need only to be set to the correct identification number of the particular joint required to ensure correctness of machining. As a considerable amount of material has to be removed from each stamping some difficulty from distortion after machining might be expected. None has occurred owing to the care taken in supporting the stamping in the jigs.

A picture of one of these fittings in both the stamped and the fully machined conditions is shown in a photograph. The first operation on the stamping, after marking off centre line and checking for material to clean up is to spot face it on the edges of each of the three projecting lugs; and to mill and drill these lugs. In all subsequent operations the stamping is located by these lugs and is clamped down by them alone. It is consequently under no constraint imposed by the jigs and deformation does not occur.

A typical jig for this fitting is also shown. It can be seen that the clamping device for the stamping is mounted so that it may be rotated about both a vertical and a horizontal axis, and that divided arcs for checking the degree of such rotation are provided. These arcs are marked with part numbers, and are provided with dowel holes. To set the jig to a given part number the arcs are both set to the division bearing that number and the dowel pins inserted, and—in this particular case—the milling and drilling for the skewed lugs for connection to the longitudinals may be carried out with the certainty of accuracy.

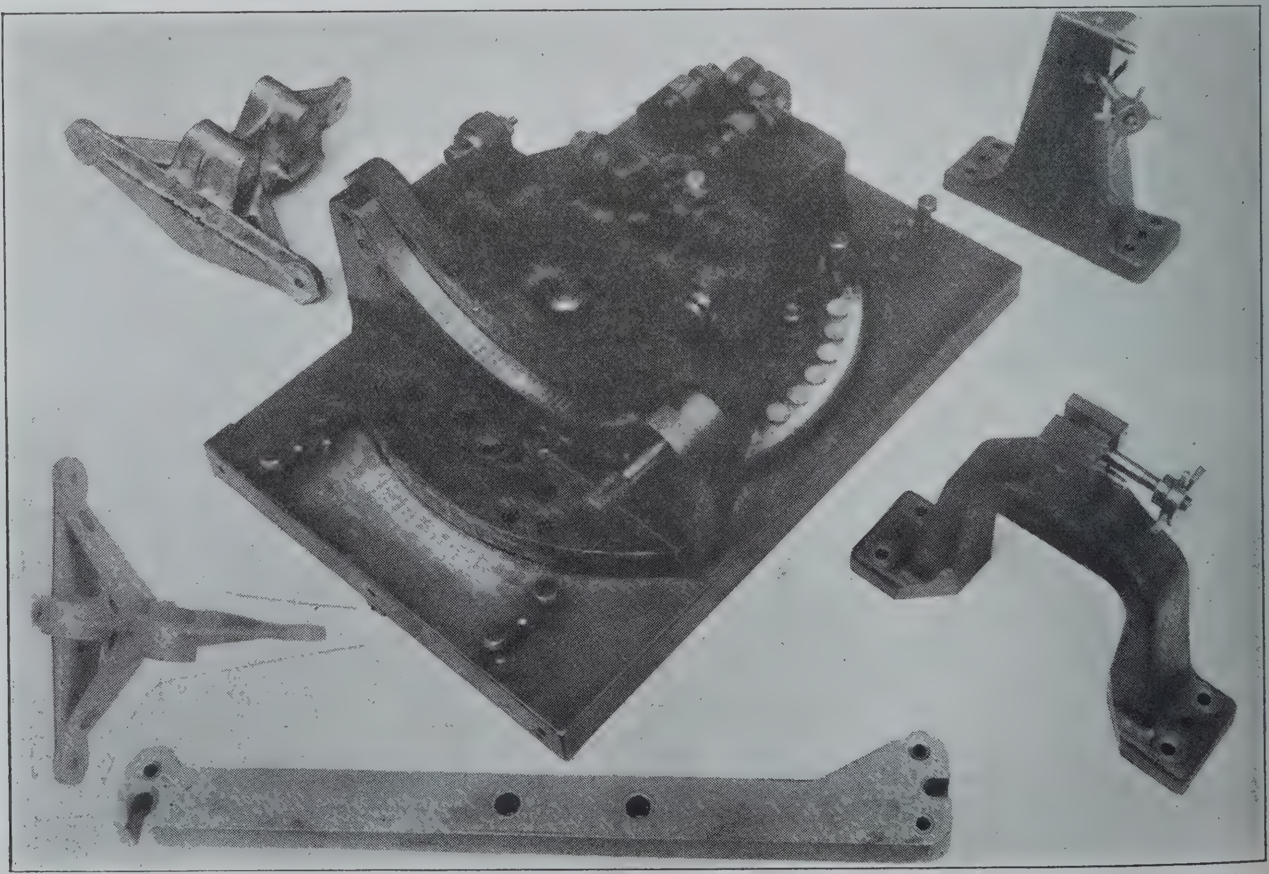
The workman carrying out such an operation stamps the part in question with the part number used in setting the jig, and all the inspection required is to see that this marking agrees with the jig setting, and that the part fits the jig.

It would be possible—if space and time permitted—to discourse at length on similar devices used to overcome the manifold difficulties of producing this very remarkable engineering structure. Unfortunately it is necessary to be content with indicating some of the main lines of attack adopted. And from this necessarily brief and inadequate account it should be evident that the success which has attended this constructional work is essentially one of technique.

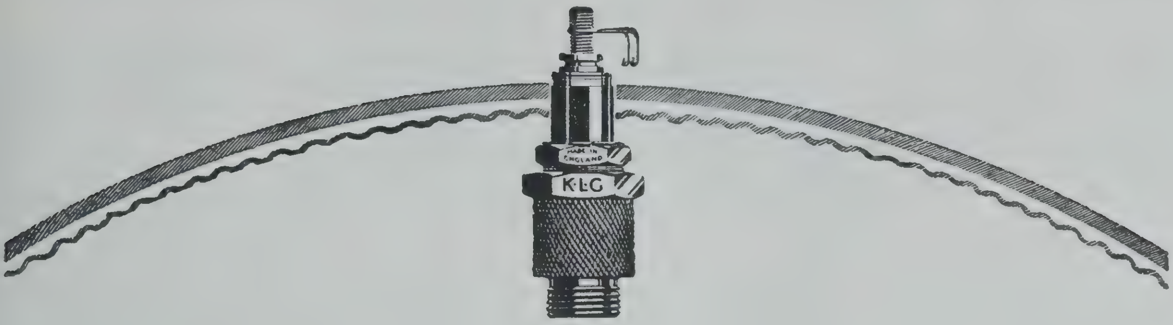
The difficulties have all been overcome in the actual drawing office work of computing and designing the details, and in the development and devising of satisfactory methods of and appliances for, making those details to the required standards of accuracy. Such work is necessarily arduous and expensive, but carried out as it has been carried out here it leads eventually to very great economy of manufacture.

The greater part of the cost of R100 will undoubtedly arise less from the actual process of manufacture than from the difficulties of developing suitable design and workshop methods for dealing with the many new problems that had to be solved, and this note will it may be hoped indicate clearly how large a part Boulton and Paul Ltd. have played in making this ship possible.

As some sort of index to the magnitude of the work carried out it may be mentioned that the firm's drawing office have devoted nearly 150,000 man-hours to design work, and that the works have produced 6 miles each of main longitudinal booms and of ridge girder booms, and that in the ship as a whole there are 27 miles of tubing of all kinds, held together by 65,000 bolts and nuts, 600,000 rivets, 15 miles of swaged tie-rods, and 11 miles of cables.



Jig for milling and drilling skewed lugs on the main joint stamping for the outer ridge girder. In the top left corner is a stamping in its original form, and below one after finishing. Note the arrangement for rotating the jig about two axes.



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B.M.W. ENGINE DEVELOPMENTS.

The development of aero-engines in Germany was arrested at the end of the War by the conditions imposed by the Treaty of Versailles, and for some considerable period German aircraft manufacturers were forced to use foreign engines to some considerable extent.

The Bayerische Motoren Werke A.G., of Munich, developed during the War a highly successful type of engine with oversized cylinders and a high compression ratio intended specifically for high altitude work, but having characteristics of marked value for commercial service. This type of engine had a very excellent fuel consumption at normal output at any altitude, and was capable for a short period of developing a maximum output much in excess of that normal continuous rating. To comply with the Peace Treaty requirements this type of engine was to some extent detuned, but as the B.M.W.IIIa it was for some years a very useful commercial engine. While the restrictions were in force, however, there was little incentive to the development of the type.

With the removal of the restrictions early in 1927, however, the firm tackled the development of engines in earnest. The type IIIa was superseded in 1927 by the type IVa of slightly increased bore, but interchangeable as far as mounting with the IIIa, of nearly equal weight and considerably increased output.

This engine was speedily followed by the type VI—a doubled twelve-cylinder version of the IVa, and more recently by a whole series of new types showing very decided changes of detail design. The present series of B.M.W. engines—specifications whereof are given herewith—comprise one—the B.M.W.V with aluminium cylinder-blocks—and one—the B.M.W.VIII with aluminium cylinder-heads—a marked change from the traditional all-steel cylinder construction. Also a new departure is the adoption of gear drives, of the Farman type, on certain of their engines.

Thus though retaining the characteristics of the original B.M.W. engines of low fuel consumption and a capacity for developing a large maximum output for a short period while taking-off, the new B.M.W. engines, the new types, show a very noticeable fall in their weight power ratio.

One very interesting development is that of a geared engine of the vertical six-cylinder type with a normal rating of 400 h.p. and a maximum of 470 h.p. in the low compression type, which weighs well under 2 lbs per h.p. and should form an admirable power plant for high speed aeroplanes.

The B.M.W.V Engine.

Type.—Six-cylinder vertical water-cooled.

Cylinders.—165 m/m. bore, 190 m/m. stroke. Steel barrels inserted into an aluminium block casting with rubber ring packing at bottom, and an aluminium cylinder-head and cam casing combined held to cylinders by screwed-in valve seatings. Two overhead valves per cylinder.

Valve Gear.—Totally enclosed overhead camshaft driven by vertical shaft from rear end of engine.

Auxiliaries.—Magnetos transversely mounted at rear of crankcase, water pump vertically below magnetos. Oil pumps in sump at rear of crankcase base.

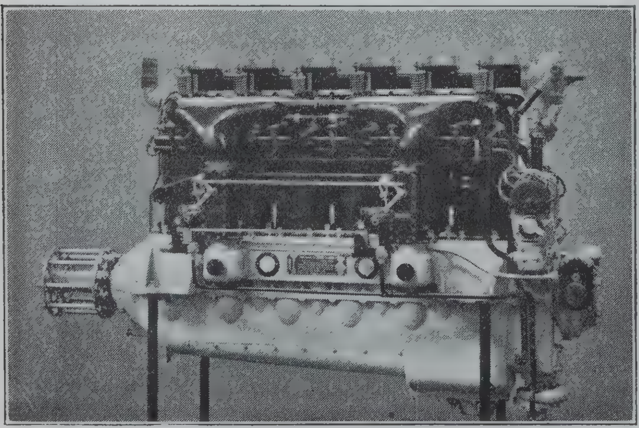
Carburettors.—Two Zenith carburettors on port side feed each one manifold for three cylinders. There is a balancing connection between manifolds.

Weight Dry.—335 kg. (737 lbs.).

Performance.—7.3 compression. Maximum output 410 b.h.p. at 1,650 r.p.m. Normal 320 b.h.p. at 1,520 r.p.m. Fuel consumption .022 kg. (.484 lbs.) per h.p. hour.

6.0 compression. Maximum output 400 b.h.p. at 1,650 r.p.m. Normal 320 b.h.p. at 1,535 r.p.m. Fuel consumption 0.225 kg. (.495 lbs.) per h.p. hour.

5.5 compression. Maximum output 370 b.h.p. at 1,650 r.p.m. Normal 320 b.h.p. at 1,570 r.p.m. Fuel consumption 0.23 kg. (.504 lbs.) per h.p. hour.



The B.M.W.Va 6-cylinder engine.

The B.M.W.Va Engine.

This engine is an improved and boosted version of the type IVa, which it is intended to replace.

Type.—Six cylinder vertical water-cooled.

Cylinders.—Separate steel cylinders with separate welded steel water pockets.

Valve Gear.—Overhead camshaft in a tubular casing supported by cylinder heads operates salves through rocker projecting into span.

Auxiliaries.—All auxiliaries at rear of engine. Magnetos on transverse shafts below magnetos and oil pumps on base of crankshaft. Drives provided for petrol pumps (A.M. type). A centrifugal oil cleaner is fitted.

Carburettos.—Two Zenith carburettors on port side each supply three cylinders. Balance connection between manifolds.

Weight Dry.—317 kg. (697 lbs.).

Performance.—7.3 compression. Maximum output 385 b.h.p. at 1,650 r.p.m. Normal 320 b.h.p. at 1,555 r.p.m. Fuel consumption 0.215 kg. (0.473 lbs.) h.p./hour.

6.0 compression. Maximum output 370 h.p. at 1,650 r.p.m. Normal 320 b.h.p. at 1,565 r.p.m. Fuel consumption 0.22 kg. (0.484 lbs.) h.p. hour.

5.5 compression. Maximum output 350 b.h.p. at 1,650 r.p.m. Normal 320 b.h.p. at 1,600 r.p.m. Fuel consumption 0.225 kg. (0.495 lbs.) h.p. hour.

The B.M.W.VI Engine.

Type.—Twelve-cylinder 60° Vee, water-cooled.

Cylinders.—160 m/m. bore, 190 m/m. stroke. Separate steel cylinders with separate welded steel jackets.

Valve Gear.—Similar to B.M.W.Va.

Auxiliaries.—Magnetos driven from a shaft inclined at 30° to horizontal from the camshaft drive shaft of starboard cylinder line. Water pump vertically below crankshaft at extreme end of crankcase, and oil pumps in sump at rear of crankcase. A.M. petrol pumps above and each side of water pump. A worm geared hand starter fitted at end of crankcase.

Weight Dry.—510 kg. (1,122 lbs.) with aluminium, 470 kg. (1,034 lbs.) with "Electron" crankcase.

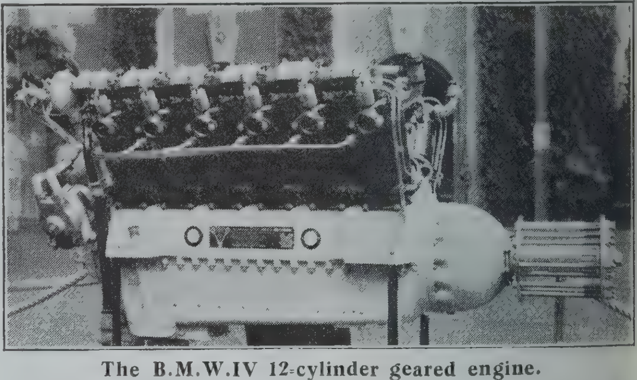
Performance.—7.3 compression. Maximum output 750 b.h.p. at 1,650 r.p.m. Normal 500 h.p. at 1,443 r.p.m. Fuel consumption 0.215 kg. (0.743 lbs.) per h.p. hour.

6.0 compression. Maximum output 660 b.h.p. Normal 500 b.h.p. at 1,460 r.p.m. Fuel consumption 0.22 kg. (0.484 lbs.) per h.p. hour.

5.5 compression. Maximum output 650 b.h.p. at 160 r.p.m. Normal 500 b.h.p. at 1,467 r.p.m. Fuel consumption 0.225 kg. (0.495 lbs.) per h.p. hour.

The Geared B.M.W.VI Engine.

This is the B.M.W.VI with an airscrew reduction gear of 1.5 ratio. The weight of the geared version is 545 kg. (1,199 lbs.) with aluminium and 505 kg. (1,111 lbs.) with "Electron" crankcase. Outputs are the same as the ungeared version.



The B.M.W.IV 12-cylinder geared engine.

The B.M.W.VIIa Engine.

This is a doubled version of the B.M.W.Va and bears the same relation to the B.M.W.VI that the B.M.W.Va does to the earlier B.M.W.IV. It has the same bore and stroke as the VI and is scarcely distinguishable therefrom except in having the ignition gear removed to the front end of the crankcase. Bosch distributors and coil ignition, or magnetos, may be mounted here.

Weight Dry.—525 kg. (1,155 lbs.) with aluminium. 485 kg. (1,067 lbs.) with "Electron" crankcase.

Performance.—7.3 compression. Maximum output 770 b.h.p. at 1,650 r.p.m. Normal 600 at 1,520 r.p.m. Fuel consumption 0.215 kg. (0.473 lbs.) per h.p. hour.

6.0 compression. Maximum output 700 h.p. at 1,650 r.p.m. Normal 600 b.h.p. at 1,565 r.p.m. Fuel consumption 0.22 kg. (0.484 lbs.) per b.h.p. hour.

5.5 compression. Maximum output 670 b.h.p. at 1,650 r.p.m. Normal 600 b.h.p. at 1,590 r.p.m. Fuel consumption 0.225 kg. (0.494 lbs.) per b.h.p. hour.

The B.M.W.VIIa Geared Engine.

This is the VIIa with a reduction gear of 1.61 ratio. The weight is 500 kg. (1,232 lbs.) with aluminium, or 520 kg. (1,144 lbs.) with "Electron" crankcase.

Performance.—7.3 compression. Maximum output 755 b.h.p. at 1,024 (airscrew) r.p.m. Normal 600 b.h.p. at 950 (airscrew) r.p.m. Fuel

PALMER

STANDARD SIZES.

Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore	
		m/m	m/m	m/m
375×55	168	111·12	25·4	Central
,,	195	130·	38·09	Central
300×60	16	111·12	25·4	Central
450×60	30	69·	31·75	Central
,,	172	130·	38·09	Central
575×60	21	160·	28·	Central
,,	180	150·	38·09	104/46
,,	186	120·	34·92	Central
,,	190	150·	38·09	Central
600×75	21	160·	28·	Central
,,	180	150·	38·09	104/46
,,	186	120·	34·92	Central
,,	190	150·	38·09	Central
700×75	78	178·	44·45	132/46
,,	79	178·	44·45	Central
,,	100	178·	38·09	132/46
,,	101	178·	31·75	132/46
,,	196	178·	55·	Central
600×100	188	120·	34·92	Central
,,	304	150·	38·09	104/46
,,	333	120·	34·92	Central
700×100	77	178·	44·45	132/46
,,	92	185·	55·	135/50
,,	95	185·	55·	Central
,,	99	178·	38·89	132/46
,,	112	150·	38·09	Central
700×100	176	178·	44·45	Central
,,	179	178·	55·	132/46
650×125	119	178·	55·	132/46
,,	147	178·	55·	Central
,,	188	120·	34·92	Central
,,	336	178·	44·45	132/46
750×125	77	178·	44·45	132/46
,,	92	185·	55·	135/50
,,	95	185·	55·	Central
,,	99	178·	38·89	132/46
,,	112	150·	38·09	Central
,,	176	178·	44·45	Central
,,	179	178·	55·	132/46
800×150	161*	185·	55·	135/50
,,	162*	185·	55·	Central
,,	163*	185·	66·67	135/50
,,	169†	185·	55	135/50
,,	177	185·	55·	135/50
,,	183	185·	55·	Central
,,	211*	185·	60·32	135/50
1000×150	167	185·	55·	125/60
,,	174	250·	80·	Central
,,	182	185·	55·	Central
,,	187	220·	66·67	Central
,,	201	185·	60·32	125/60
,,	210	185·	60·32	Central
1000×180	149	220·	80·	Central
,,	149	185·	55·	Central
,,	155	220·	66·67	Central
,,	166	185·	55·	125/60
900×200	107	185·	55·	Central
,,	108	185·	55·	125/60
,,	128	220·	66·67	Central
,,	137	250·	80	Central
,,	157	185·	80·	Central
,,	202	185·	60·32	Central
1100×220	134	220·	66·67	Central
,,	136	250·	80·	Central
975×225	192	185·	60·32	Central
,,	194	185·	55·	125/60
1250×250	314	250·	80·	Central
,,	154	304·8	101·6	Central
1500×300	305	304·8	152·4	Central
,,	306	304·8	101·6	Central
1525×325	197	304·8	101·6	Central
1750×300	139	400·	152·4	Central
,,	191	350·	150·3	Central
1750×350	193	400·	125·	Central

**Wheels Nos.* 161, 162, 163, *and* 211 *are of stronger type than the other wheels for* 800 × 150 *tyres.* †*Wheel No.* 169 *is fitted with Ball Bearings*
Grease gun equipment is now a standard fitting on all wheels. (L/NB)

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consumption 0.22 kg. (0.484 lbs.) per b.h.p. hour.

6.0 compression. Maximum weight 685 b.h.p. at 1,024 (airscrew) h.p.m. Normal 600 b.h.p. at 980 (airscrew) r.p.m. Fuel consumption 0.225 kg. (0.495 lbs.) per b.h.p. hour.

5.5 compression. Maximum output 655 b.h.p. at 1,024 (airscrew) r.p.m. Normal 600 b.h.p. at 995 (airscrew) r.p.m. Fuel consumption 0.23 kg. (.506 lbs.) per b.h.p. hour.

THE B.M.W.VIII.

TYPE.—Six cylinders, vertical, water-cooled.

CYLINDERS.—160 m/m. bore, 180 m/m. stroke. Separate steel cylinders, steel-jacketed with separate aluminium heads to each cylinder.

AUXILIARIES.—Fitted with a 2/1 reduction gear for airscrew and front mounted ignition (Bosch coil or magnetos). Otherwise similar to other B.M.W. vertical engines.

WEIGHT.—365 kg. (803 lbs.) with aluminium, 330 kg. (726 lbs.) "Electron" crankcase.

PERFORMANCE.—7.3 compression. Maximum output 530 b.h.p. at 2,400 r.p.m. Normal 400 h.p. at 2,190 r.p.m. Fuel consumption 0.22 kg. (0.464 lbs. per h.p. hour).

6.0 compression. Maximum output 500 b.h.p. at 2,400 r.p.m. Normal 400 b.h.p. at 2,230 r.p.m. Fuel consumption 0.225 kg. (0.495 lbs per h.p. hour.

5.5 compression. Maximum output 470 b.h.p. at 2,400 r.p.m. Normal 400 b.h.p. at 2,275 r.p.m. Fuel consumption 0.23 kg. (0.503 lbs. per h.p. hour.

THE JUNKERS HEAVY OIL ENGINE.

The photograph here reproduced shows the experimental Junkers heavy oil engine which was exhibited at the Berlin Aero Show. Complete reticence seems to have been observed as to the details and the performance of this engine which was built in 1926, but from what is common knowledge concerning earlier types of Junkers engines and the appearance of this particular engine certain reliable deduction may be made.

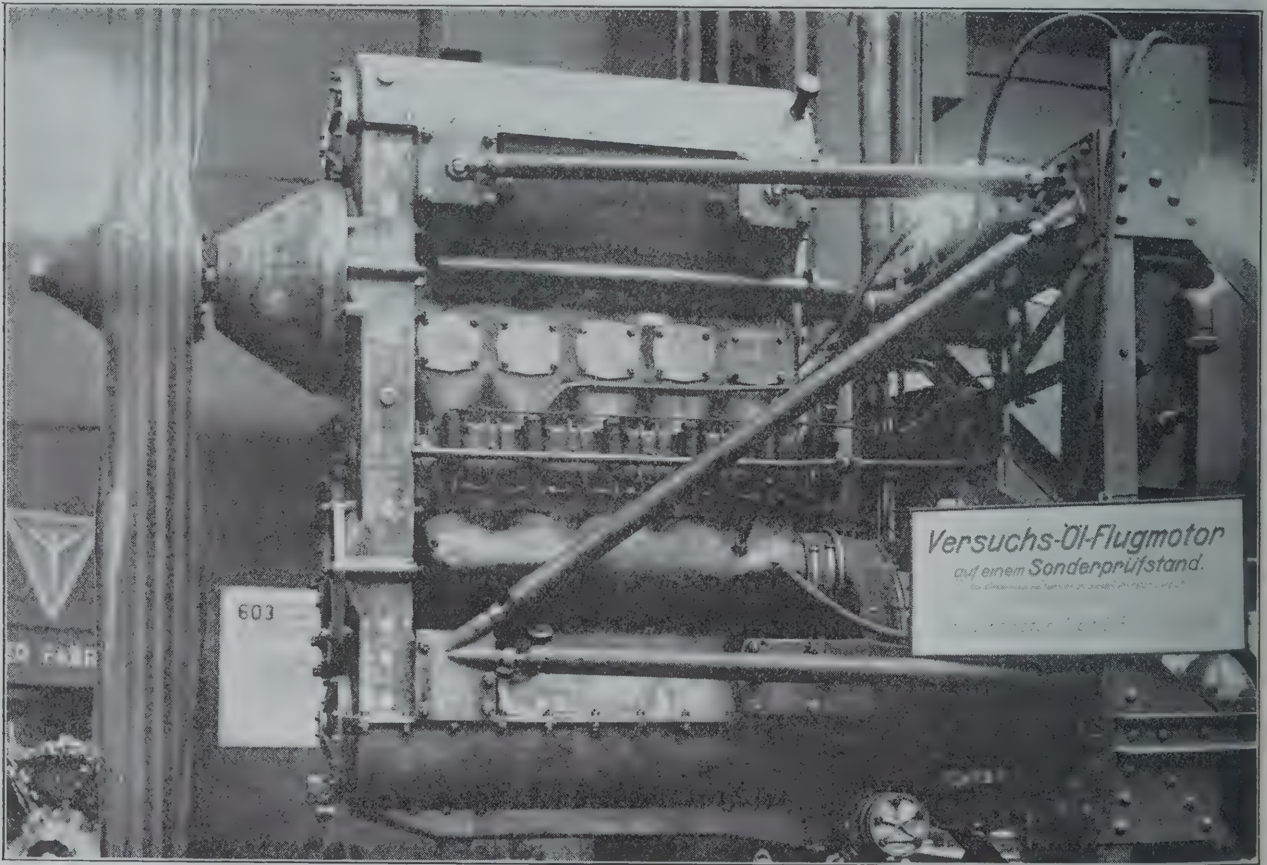
This particular engine appears to have the unusual number of five cylinders. Each cylinder consists of an oper ended barrel with two sets of ports, one for inlet and th other for exhaust, towards opposite ends of the barre Above and below the liners are two crankshafts, each opera ing one piston in each cylinder, and geared together by train of gears arranged down the casing at the front end the engine.

The two pistons in each cylinder compress air betwee them on their inward stroke, fuel is pump-injected at near their common dead centre and ignited by the heat the compressed air charge; combustion and expansion occu on the outward stroke. Before the end of this stroke on piston uncovers the exhaust ports at one end of the cylinde Shortly after the other piston uncovers the inlet ports, whic are supplied with air by a scavenger pump, and a fres charge of air rushes in and forces out the burnt charg On the return stroke compression begins as soon as bot sets of ports are covered, and the cycle is repeated.

In the stationary engines piston scavenging pumps ar used; in the aero-engine apparently a rotary blower is use for this purpose.

The airscrew is apparently driven from one of the inte mediate gears in the train coupling the two crankshafts.

No reliable information is available as to the fuel injectio system used, but it is believed to be of the "solid" type Rumour credits this engine with an output of 700 b.h.p. for weight of 800 kg. (1,760 lbs.), but cannot be considere trustworthy.—W. H. S.



The Junkers experimental heavy oil engine as exhibited at the Berlin Aero Show.

Navigation Instruments.

"Instruments for Aerial Navigation." By A. J. Hughes, O.B.E. 98 pp., 5¾ in. x 9½ in., many illustrations. Published by Henry Hughes and Son Ltd. Price 2s. 6d. net.

This book, compiled and published by a well-known maker of Aircraft Instruments, is one which should be in the possession of all those who may have to use instruments of the type with which it deals.

Naturally enough the instruments described therein are of types manufactured by the firm which publishes the work, but it is no mere catalogue of proprietary articles. Each instrument is described, both as to the principles on which it is based, its actual construction and the method of use, and a very considerable portion of the book is therefore a useful guide to the principles used for air navigation as distinct from the particular type of instrument which may be in question.

The book is divided into five chapters, I dealing with direction finding instruments, including Magnetic and Earth inductor compasses and turn indicators; II, instruments for the estimation of drift; III, instruments for determining position; IV, instruments fo artillery (spotting, speed finding, torpedo, and camera aiming instru ments); V, height, speed, time, and temperature measuring instru ments. An appendix describes the Cooke-Shilovsky Turn Indicato the Estimograph, the Air Speed Recorder, Air Log, and various leve indicators.

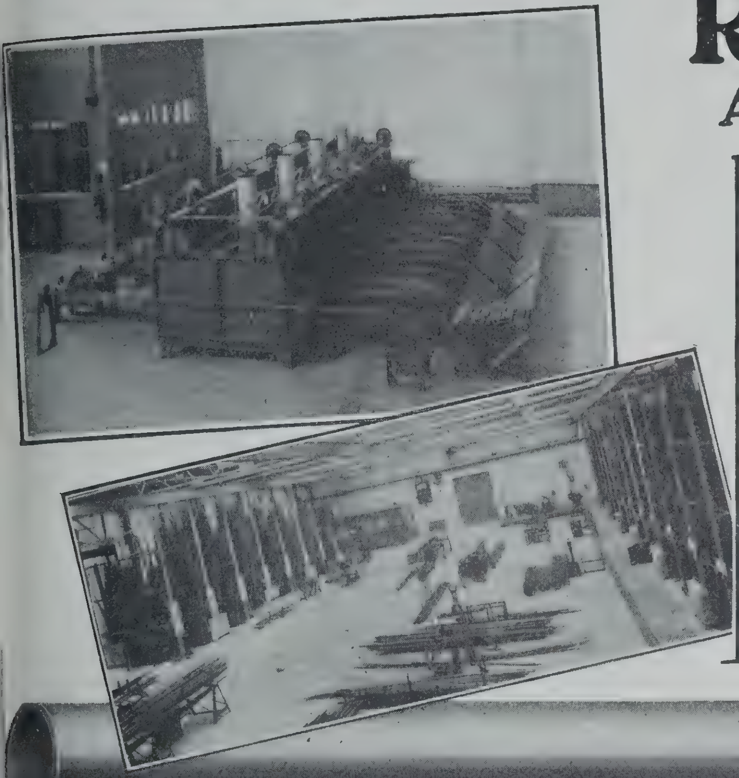
The book is excellently printed and illustrated, and is generall very clearly written. There are one or two minor misprints of littl importance and the explanation of one instrument has become little involved and confusing.

German Airworthiness Schedules.

"Bauvorschriften für Flugzeuge." Published by the Deutsche Versuchsansalt für Luftfahrt, Berlin-Aldershof. 128 p 4¼ in. x 6¾ in.

This is a handbook of "airworthiness" regulations issued by th competent German Authority, the D.V.L. It comprises material spec fications, rules as to equipment and the like imposed on all Germa aircraft.

It is exceedingly well arranged and indexed.



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THE WEIGHT OF AEROPLANES.

Major T. M. Barlow, of the Technical Staff of the Fairey Aviation Co. Ltd., in a paper read before the Royal Aeronautical Society on Nov. 22, discussed the weight of aircraft in terms at once detailed and general. Originally the paper was to have discussed in particular those aspects of the weight problem which limit or affect increases in the size of aircraft, but this subject was found to cover so wide a range that the paper as actually read dealt mainly with the limitations imposed on existing types by considerations of weight.

One of the first problems confronting the designer of an aeroplane to meet a given specification is the securing of a correct compromise between weight and head-resistance. He may have to consider the alternatives of biplane or monoplane, water- or air-cooled engine—or any one of a number of alternative methods of construction or of general lay-out—in each of which variations in both weight and resistance occur. For any given machine under similar operating condition an increment of weight may be regarded as equivalent to an increase of head resistance. But the equivalent increase in resistance corresponding to unit increase in weight varies with the performance of the machine, and with the height of operation.

For high speed co-operation a given increase of weight will be compensated by a smaller reduction in resistance—expressed in terms of equivalent flat plate area—than will be required for a machine of lower speed. As altitude increases, however, the relative importance of weight increases. Thus the extra resistance of air-cooled engines at low altitudes outweighs the weight saving they render possible. At height, however, the position may be reversed.

The question of air- or water-cooled engines leads to a consideration of the effects of fuel consumption and its effect on weight. This again if expressed in terms of equivalent resistance varies in importance with the class of aeroplane, and with altitude, the extra weight caused by higher fuel consumption being of least importance in high speed types and of greater importance at altitude than at sea-level.

After this general survey of the influence of weight on performance as shown by the resistance equivalents of weight increases, Major Barlow analysed some of the main details contributing to the weight of aircraft structures. Among these are the effect of varying load factors, the relative virtues of timber, light alloys, and steel as materials of construction, and the weight per h.p. of power plants, including airscrews.

The author then passed to a consideration of the influence of the fully-loaded weight of an aircraft on possible range, the useful load and power plant remaining constant. This analysis showed that the range increased as the loaded weight increases up to a certain limit, whereafter the added structure weight swamped the effect of the extra fuel which could be carried.

Consideration of an idealised case—an aeroplane consisting merely of wing with negligible body resistance, suggests that a range of 10,000 miles is beyond the possible limit, and that no increase in range will be obtained by increasing machines to over 50,000 lbs. weight.

As to the influence of size on weight, Major Barlow expressed the opinion that the size of land machines would be definitely limited by aerodrome facilities, and by the difficulty of transporting components from factory to aerodrome, and suggests 160 ft. span and an all up weight of 45,000 lbs. as about the practical maximum.

In the case of seaplanes no such limits seemed to him to operate. Machines could be built and launched at the waterside, limitations of aerodrome size, and of the loading of wheels disappear, and wing loading much higher than practicable on land machines could be used.

He did not believe, however, that large machines would gain anything beyond an increase in range or load proportionate to their increase of power in virtue of size alone. Any other improvement must be due to the skill of the designer in overcoming such problems as the one discussed in his paper.

A somewhat lengthy discussion was mainly devoted to engines as to the precise meaning of some of the lecturer's many diagrams, but was enlivened by the inevitable interchange of opinion as to the physical limits to the size of aircraft between Mr. Handley Page and Major A. R. Low.—W. H. S.

THE ROYAL AERONAUTICAL SOCIETY.

On Thursday, Nov. 24, at 6.30 p.m., Mr. F. Sigrist, M.B.E., A.F.R.Ae.S., will lecture before the Royal Aeronautical Society at the Royal Society of Arts, John Street, Adelphi. The title of his lecture will be "Some Aspects of the Production Problem in Aircraft." Tickets for visitors may be had on application to the R.Ae.S., 7, Albemarle Street, W.1.

Mr. F. Sigrist is a Joint Managing Director of the H. G. Hawker Engineering Co. Ltd., and is one of the few pioneers of Aviation who have kept not only abreast of but rather in front of the times. He will deal in detail with the production problems which face the aircraft designer of to-day. In the course of his lecture he will draw attention to the serious position which faces the Industry should it be called upon to expand suddenly in case of war.

The opinion of the lecturer is stated definitely, "We cannot expand immediately, neither can we find sufficient men to instruct allied trades which might be of assistance." Few will quarrel with that sentiment.

A WIRELESS BEACON.

The Air Ministry, according to reliable reports, are erecting at Orfordness, on the coast of Suffolk, a wireless beacon of the rotating loop type which has been developed by the R.A.E. at Farnborough.

The loop aerial emits a signal of a directional character with a strongly marked minimum of intensity. It is rotated at a steady rate and while rotating sends out a series of characteristic signals. One of these of an unmistakable character is sent when the direction of minimum radiation due North.

The observer on ship or aeroplane who wishes to get hi bearings from this beacon must start a stop watch at th instant of hearing the North signal and stop it when he r ceives the signal of minimum strength. By a simple ca culation he can deduce his bearing from the time thu measured.

For instance if the loop rotates at 1 revolution per minut each second shown on the stop watch represents one sixtiet of 360°, or 6°.

The Orfordness beacon will run on 1,040 metres wave lengt and is to have a range of 200 miles.

FAIRCHILD—CAMINEZ MOVES.

Mr. Sherman M. Fairchild, President of the Fairchild Ai plane Manufacturing Corporation states that the Corporatio has purchased the minority stock interest of Mr. Harol Caminez and Mr. Leon Caminez in the Fairchild Camine Engine Corporation. The activities of the Engine and Ai plane Corporations will be consolidated, which gives th facilities of each Company to the other and reduces overhea charges.

Mr. Harold Caminez has resigned as Chief Engineer, an Mr. David Caminez has resigned as Treasurer of the Fai child Caminez Engine Corporation.

An 8-cylinder cam engine and a small 80 h.p. 4-cylinde cam engine have been built and flown, but as yet the exper mentation has not progressed to a point where definite pe formance or specifications can be announced.

To this may be added the information that the big 4-cylinde engine has been abandoned, partly because the powerful in pulses on a large airscrew set up torque-reactions which shoo the machines in which they were mounted more than is de sirable, and partly because there were certain cooling de fects. Contrary to general impression there was no actua vibration set up by the novel cam system on which the en gine works. The torque trouble and the cooling troubles hav both been put right and when a few minor difficulties hav been overcome the engine promises to be very satisfactor indeed.

AS USUAL.

In these days if anybody did anything remarkable with a aeroplane and did not use K.L.G. Plugs the fact would de mand special attention. But, just in case anybody shoul think that such a thing has happened, the fact must be pu on record that in the recent high speed flight of the Supe marine S.5 (Napier Lion engine), piloted by Flt. Lt. d'Arc Greig, K.L.G. Plugs were fitted, as usual.

Although officially this flight was not a record, because i did not beat the previous record by a big enough margi this was at any rate the highest speed yet officially time To reach this speed the Napier Lion, which was the sam identical engine which won the Schneider Trophy alon the Lido last year, was run up to close on 4,000 r.p.m. I the Schneider Contest it was running at something lik 800 less r.p.m., and consequently a greater stress was i fact imposed on the K.L.Gs. than has ever been put o sparking plugs in an aero-engine before.

FAMOUS AEROFOILS.

Those enthusiasts who collect pictures of famous aircraf can add materially to their collection by acquiring the lates album produced by D. Napier and Son Ltd. The price is guinea, but as it contains pictures of twenty-nine of th World's most famous aircraft fitted with Napier engines each picture is remarkably cheap at the price.

The pictures are exceedingly good photogravures from photographs. Each measures $5\frac{1}{2} \times 7\frac{1}{2}$ and is what printin people call "plate sunk." As a matter of fact the whol collection cut out and framed individually would make excellent decorations for a Service Mess or a Club-room o for the house of an aeronautical enthusiast.

Most of the machines are shown on the ground, but a goo many of them are in the air or on the water or in the ac of taking off. In addition to aeroplanes, there is a very goo picture of Captain Malcolm Campbell's speed-record car an of the latest Napier engine,—the 530 h.p. racing type.

The aeroplanes illustrated are the Avro Avenger, th Gloster Gorcock (getting off), the Vickers Vivid the Vickers Vixen, the Parnall Pike, the Blackburn Blackburn, the Boulton and Paul Bugle, th Handley Page Hyderabad, the Vickers Virginia, the Avr Buffalo, the Blackburn Ripon II, the Handley Page Harrow II, the De Havilland Hound (flying and very much alive) the Fairey IIIF (on an almost vertical bank), four Vickers Vernon (in the Desert), the Vickers Victoria, the Handley Page W.10 (in the air), the Fairey IIIF on floats (over the water), the Blackburn Velos (also over the water), the Gloster IV (in tow at Venice), the Supermarine S.5 (afloat), the Supermarine Seagull, two Supermarine Southamptons (afloat), seven Fokker D.C.1s (over Rotterdam), the Heinkel H.D.17, the Heinkel H.E. (afloat), the Dornier Wal (getting off), the Dornier Superwal (in the air), and the Smolik.

LADY BAILEY'S PROGRESS.

On Nov. 22 Lady Bailey, who is pluckily proceeding with her return flight from the Cape to England, arrived at Fort Lamy on Lake Chad in Equatorial French Africa. Readers will remember that owing to her inability to obtain permission to fly over the Sudan she decided to return up the West Coast of Africa by way of Angola and the Belgian and French Congo.

AUSTRALIA—ENGLAND.

On Nov. 22, Capt. Frank Hurley and Messrs Moir and Owens, who are attempting to fly from Australia to England on the Ryan monoplane *Spirit of Australia,* arrived at Heliopolis aerodrome, Cairo. They had originally intended flyng by way of Aleppo and Constantinople but presumably weather conditions forced them to change their plans at the ast moment.

They had omitted to apply for the customary permission to fly over Egypt, which requires fifteen days' notice, but the Egyptian Government agreed to provide them with an emergency permit resulting in only one day's delay.

They left Cairo on Nov. 24 and flew to Sollum.

On Nov. 25 they flew from Sollum to Athens.

On Nov. 26 they left Athens but were forced to land at Varimbodi shortly after leaving Tatoi aerodrome and their machine was damaged. Capt. Hurley was slightly injured but his companions escaped unhurt.

THE AUTO=GIRO'S TOUR.

Somewhat belated but none the less interesting is the folowing brief report of the tour made between Oct. 3 and Oct. 13 by the Autogiro, piloted alternatively by Mr. Rawson and by the inventor Senor Don Juan de la Cierva.

The arrival at Paris, when Don Juan somewhat deteriorated his undercarriage by landing too nearly vertically, was duly reported in THE AEROPLANE at the time. After the necessary repairs he left Paris on Oct. 3 and flew 180 miles to Brussels.

On Oct. 4 he demonstrated the machine before the leaders of Belgian Aviation including the A.D.C. to the King of the Belgians and the President and Secretary of the Belgian Royal Aero Club. The visitors also included the Ambassador or the United States and the Spanish Ambassador. On Oct. 5 the Belgian Crown Prince and Princess Astrid watched Senor de la Cierva fly the machine, and later Mr. Rawson, with Mr. Blake, the Secretary of the firm, as passenger, flew over the Royal Palace at Brussels, whence they proceeded to Cologne (110 miles).

On Oct. 6 they flew to Dortmund (60 miles) in thick weather, and later went on to Hannover (105 miles). On Oct. 7 they lew to Dessau (105 miles), where they were received by Dr. Schleissing, of the Junkers firm. Later they went on to Berlin (60 miles), where they were received by Herr Merkel of the Luft Hansa. On Oct. 8 Senor de la Cierva took up Herr Hentzen of the Reichsverkehrs Ministerium, and Mr. Rawson took up Herr Udet, the famous war pilot and artist.

On Oct. 9 Senor de la Cierva took up Herr Merkel, and in the afternoon Mr. Rawson and Mr. Blake flew to Magdeburg 75 miles), Hannover (75 miles), and Munster (95 miles), where they were the guests of the city.

On Oct. 10 they flew to Sœsterberg, the Dutch Military Aerodrome (104 miles), and thence to Rotterdam (35 miles), where he leaders of Netherlands Aviation gathered to see the demonstration. Further demonstrating was done on Oct. 11.

On Oct. 12 they flew to Brussels (70 miles), and to Valenciennes (55 miles), where they were held up by fog. On Oct. 13 they flew to Paris (110 miles), where the machine was eft for further demonstrations, the pilot and passenger reurning to England by more ordinary means.

The total distance covered, including demonstration flights, was about 1,450 miles.

THE BRITISH COLUMBIA AIRWAYS ACCIDENT.

Particulars have now come from Victoria, British Columbia, concerning the aeroplane crash in which Mr. MacCallum Scott, late M.P., and his wife lost their lives. The machine was a Ford-Stout three-engined monoplane built to arry twenty-three passengers. It was being used on the new air-line run by British Columbia Airways between Vicoria, B.C., and Seattle, Wash., U.S.A. The pilot, Mr. Herold Walker, had had considerable war flying experience nd a record of between 3,000 and 4,000 flying hours to his redit.

Apparently the machine left Victoria in fine weather and an into fog before reaching the coast of Washington State. The body of Mrs. MacCallum Scott was washed up in Disovery Bay, between Dungeness and Port Townsend. Her body was entangled with the wicker-work chair in which he had been sitting, indicating that the whole fuselage of he machine must have been broken up when it hit the water.

Those who lost their lives in the crash were the pilot, Mr. Herold Walker; Dr. Donald Holden, the senior member f the Medical profession in Vancouver Island; T. E. Lake, of Shanghai, Eastern Manager of the Union Oil Co. of California; Dr. Floyd Soverel, of New Jersey; Alexander MacCallum Scott, late M.P., formerly Parliamentary Secretary to Mr. Winston Churchill; Mrs. MacCallum Scott; and R. L Carson, assistant pilot.

In an able article in the *Victoria Daily Times* of September 1, Mr. Sydney Pickles, who will be remembered as a competent test pilot in this country during the War, points out the folly of running land machines on a route such as this which is almost entirely over water. He says that a flying-boat, if it runs into fog, can at any rate alight on the water before visibility becomes too bad and sit there until the fog clears, as there is never fog and wind at the same time. Which is true, except, perhaps, in the English Channel.

The fact that land machines should have been used on this line is the more extraordinary considering that Mr. Eddie Hubbard ran an air mail service from Victoria, B.C., to Seattle with single-engined flying-boats through all sorts of weather including gales and fog with close on 100% efficiency for several years just after the War.

NEW AIRCRAFT FOR CANADA.

On Nov. 23 the Deputy-Minister for National Defence announced that next year the Canadian Government would spend about $400,000 (£80,000) on the purchase of new aircraft. These machines will be for the R.C.A.F. and for the equipment of Canadian flying-clubs. Most of them will be of the light-aeroplane class, but some heavy transport and photographic machines will be bought. As far as possible orders will be placed with Canadian and British manufacturers.

THE GIPSY MOTH IN THE U.S.A.

The Moth Aircraft Corpn., which company will build the D.H. Gipsy-Moth and the D.H. Gipsy engine in the United States, has acquired a factory at Lowell, Mass., and production will begin at once.

The factory covers over 100,000 sq. ft. of space and is a steel and brick structure, located at the Lowell Airport.

ALCOHOL AND AVIATION IN AMERICA.

An American aviator, who recognises the mutual interdependence of these three substantives, sums up the present situation on the West of the Atlantic better than it has ever been done before, in the following words :—

"We are in for four more years of our present liquor system, the finest ever developed. The wets, who hoped Smith would win and establish Government liquor stores, didn't know what they were trying to let themselves in for. I have had experience with Government stores in all parts of Canada.

"On my last trip my train left Winnipeg, West-bound, at 10 a.m., and the Government liquor store opened at the same hour. As both railroads and liquor are handled by the Government it shows a woeful lack of co-operation.

"In Canada, after you pay for a permit you have to go to the store, make your purchase, and carry it home. And you can only buy during limited hours. With our present fine system we get a twenty-four-hour service, seven days a week, —*and* the bootlegger delivers. Three cheers for Hoover and Prohibition!—That's why I voted for Al Smith."

WANTED, A PARTNER.

There is an opening for an energetic man with a certain amount of money who is willing to become a partner in a going concern and take charge of the work-shops. The owner of the firm, as it is at present constituted, is chiefly occupied on outside work and wants both a first-class works manager and a little extra capital to extend the business, which already pays very well. He is of the opinion that the combination of partner and works manager would probably be for the benefit of all concerned. Anybody interested is invited to write in confidence to the Editor of THE AEROPLANE.

NOEL AND NINA TAKE THE AIR.

De Havilland advertising is rapidly becoming one of the joys of the aeronautical community, just like the Moth and the Gipsy engine. The things which the D.H. people have to say to the public are always worth hearing.

Their slogan of a year or two ago, "Get off those crowded roads," is becoming more and more apposite. Their latest application of that idea is embodied in a tiny booklet bearing the title "The Higher the Fewer" (without apologies to Lewis Carroll).

The booklet introduces Noel and Nina, the Heavenly Twins —a typical lad and lass of the village—and tells in pen-and-ink pictures, with as little wording as a cinema film, how the twins took to aviation, what they learned about the history of aviation, how they helped their aged parents, and what they did in one crowded week of glorious sport.

One hopes to see more of their aerial adventures in due course.

One strongly recommends all who want to do their bit in making the nation air-minded to get hold of a supply of these booklets from the De Havilland Company and distribute them among their friends and enemies alike. The booklet is a very good advertisement for the Moth, but it is a still better advertisement for flying,—and anybody who sees it is sure of several serious chuckles.

THE WASHINGTON CONFERENCE.

At the Washington Conference, which is to be held from Dec. 12 to Dec. 14, the Department of Civil Aviation at the Air Ministry will be represented by Mr. R. J. Goodman Crouch, who has been for a number of years chief of the Stress Department of the Air Ministry.

Mr. Goodman Crouch has been of late particularly concerned with the examination of the designs of civil aircraft prior to their being passed for their Certificates of Airworthiness. Therefore he is particularly fitted to discuss with our friends in America the points which are at present in dispute as to the mutual acceptance of Airworthiness Certificates by the United States and Great Britain.

His qualifications are not only those of a stress calculator. He has an intimate knowledge and a wide experience of aircraft construction and performance. His success as the handicapper of all our flying races for several years past is the best proof of his judgment of the capabilities of an aeroplane.

The Royal Aeronautical Society will be represented by Capt. F. S. Barnwell, who is World-famous as the designer of Bristol aeroplanes, particularly the historic Bristol Fighter.

Capt. P. D. Acland, Chairman of the Society of British Aircraft Constructors, and Mr. Goodman Crouch, will also be interested in the Conference from the Royal Aeronautical Society's point of view. Wing Commander Stedman, the chief aeronautic technician under the Canadian Government, will also be a representative of the R.Ae.S., and two prominent American members of the Society will also be present, to wit the Hon. Edward P. Warner, who is Assistant Secretary for the Navy, and Doctor Jerome C. Hunsaker, one of America's earliest and most famous naval aviators, who has recently joined the Staff of the Goodyear-Zeppelin Corporation.

The Royal Aero Club will be primarily represented by the Lord Thomson of Cardington, Chairman of the Club. And the aforementioned British representatives, also being members of the Club, will assist him in looking after its interests.

The Society of British Aircraft Constructors will be represented by Capt. P. D. Acland, Chairman of the Society.

On the whole, therefore, it will be seen that there are very competent representatives to take care of the British interests at the Conference.—C. G. G.

THE ROYAL AERO CLUB'S GREETINGS.

The Lord Thomson of Cardington, Chairman of the Royal Aero Club, who is attending the International Air Congress at Washington on Dec. 12-14, will hand to Mr. Orville Wright a letter conveying the warmest greetings from the Royal Aero Club on the 25th anniversary of the first flight made by the Wright Brothers.

STAG LANE NOTES.

The only familiar things about Stag Lane these days are the Moths and the mud. The building operations which are going on are both extensive and rapid, and visitors are well-advised not to go about without a reliable guide or to linger in the open for long lest they be built on, or round.

The appearance of the place seems to change almost daily and every inch of ground between the aerodrome and entrance (earthly) seems to be built on or has something "coming up." The ground next the main entrance is already occupied by private houses so that future extension is not possible in this direction. The recent full-throttle engine tests carried out until three o'clock in the morning have nothing whatever to do with this aspect of the situation.

Twelve Gipsy-Moths and the same number of Gipsy engines have been completed during the week. Of these, two are for the Royal Danish Flying Corps, two for equipping the Calcutta Flying Club and three for New Zealand. One of these latter is being presented to the Lyttleton Flying Club by Sir Charles Wakefield.

VERY RARE.

The German Air Force in the Great War.

NEUMANN.

(Translation by J. E. GURDON.)

The Aeroplane Book Department has secured one dozen copies (new) only of this valuable book, now out of print, and will supply orders in strict rotation at

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THE AEROPLANE BOOK DEPT.,
Cannon House, Pilgrim St., Ludgate Circus, E.C.4.

Capt. de Havilland's Coupé Moth has now done quite a number of hours' useful flying, which includes a return trip to Berlin. At present, this is the only Coupé Moth in existence, but at least two more are on order, including one for Sq. Ldr. the Rt. Hon. F. E. Guest, and another for Mr. A. S. Butler. The existing Coupé is fitted with mica, but in future this is to be replaced by unsplinterable glass.

The Coupé modification to the Moth seems likely to become very popular. There is real comfort in it, and it does not lower the performance. In fact, Capt. de Havilland's machine is reported to be a few miles an hour faster than before fitting. It is rather remarkable that when sitting in either seat with everything closed one feels just as free as in an open cockpit and can see equally well.

The one thing to which the Coupé owner has to accustom himself is flying in a felt hat—or for that matter a beret, bowler, cap, silk or straw, as you will.—C. A. S.

THE GENERAL COUNCIL OF THE ASSOCIATED LIGHT AEROPLANE CLUBS.

Representatives of the Associated Light Aeroplane Clubs were received at the House of Commons on Friday, Nov. 23, by the Right Hon. Sir Samuel Hoare, Secretary of State for Air, when an informal conference took place as to the future of the Light Aeroplane Clubs. The deputation was introduced by Lt. Col. J. T. C. Moore-Brabazon, M.P.

The following Clubs were represented :—*The Royal Aero Club*—Lt. Col. M. O'Gorman, and H. E. Perrin. *The Bristol and Wessex Aeroplane Club*—A. H. Downes-Shaw. *The Hampshire Aeroplane Club*—H. J. Harrington. *The Lancashire Aero Club*—Alan R. Goodfellow. *The London Aeroplane Club*—Major K. M. Beaumont, D.S.O., and Major R. H. Mayo, O.B.E. *The Midland Aero Club*—G. Dennison. *The Norfolk and Norwich Aero Club*—G. F. Surtees. *The Nottingham Aero Club*—C. R. Sands. *The Royal Aircraft Establishment Aero Club*—P. N. G. Peters. *The Yorkshire Aeroplane Club*—F. G. Wayman.

Mr. John Lord and Mr. C. C. Walker attended on behalf of the Society of British Aircraft Constructors.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]

Aerodrome: Stag Lane Aerodrome, Edgware, Middlesex.

Report for week ending Nov. 25.

Instructors: V. H. Baker, F. R. Matthews. *Ground Engineer*: C. Humphreys. *Aircraft*: 2 (NY and XS).

Flying Time: 9 hr. 5 min.; *Instruction*: 11 (4 hr. 40 min.); *Soloists*: 11 (4 hr. 25 min.).

Notes.—Mr. W. W. Briscoe made his first solo flight on Nov. 20.

Mr. A. C. Thomas completed the tests for his Aviator's Certificate.

Thanks to bad weather last week was the worst, as far as flying was concerned, since the Club started. Flying was only possible on Tuesday, when we were able to get in just over 9 hours' flying. The staff were kept busy preventing the sheds and machines from being blown away.

D.H. Moth (Cirrus Mark I) NY has been sold to Mr. A. F. Burns and will be replaced by a D.H. Moth (Cirrus Mark II) at the earliest possible moment.

Christmas Raffle.—Tickets for the Christmas Raffle of a D.H. Moth (Cirrus Mark I) are going very well and members who have not already done so are requested to make early application.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending Nov. 25.

Instructor: G. M. S. Kemp. *Ground Engineer*: K. C. Brown. *Asst.*: J. Tait. *Aircraft*: Until 4 p.m. Friday, Nov. 23: 3 (PT, QV, LX).

Flying Time: 1 hr. 10 min.; *Instruction*: 2 (1 hr. 10 min.).

Notes.—High winds and rain have again interfered with our flying, which is one of our smallest weeks on record.

Friday saw the triumph of Nature over Man's work. Shortly after 4 p.m. the gale increased and in one particularly heavy gust the roof decided to part company with the rest of the hangar. It was lifted clean off and carried over an adjoining road into a field where it made a really bad landing. With the departure of the roof the hangar doors decided that they could not stand the strain so they promptly collapsed onto the machines. From out of the wreckage stepped the Staff, who were fortunate to be unharmed, although very much surprised.

The machines, which are badly damaged, were removed the next day to alternative accommodation, and to-day they present a sorry sight, but we are hopeful that the makers will be able to complete the repairs of one machine in the course of a fortnight, when we will endeavour to resume our flying.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

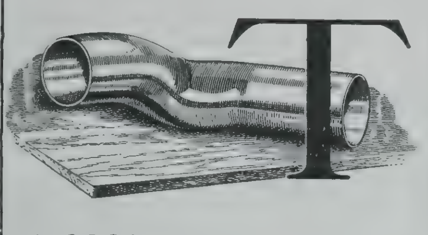
Aerodrome: Castle Bromwich, Birmingham.

Report for week ending Nov. 24.

Instructors: Flt. Lt. T. Rose, D.F.C., and W. H. Sutcliffe. *Engineer*: W. J. Halland. *Asst.*: G. Rees. *Aircraft*: 3 (LT, LW and XT).

Flying Time: 16 hr. 33 min.; *Instruction*: 10 (4 hr. 5 min.); *Soloists*: 21 (9 hr. 40 min.); *Passengers*: 6 (2 hr. 10 min.); *Test*: 38 min.

Notes.—On Sunday Mr. J. K. Morton passed the flying tests for his "A" Licence.



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"THE MACHINE WAS FITTED WITH **SLOTTED WINGS,** TO WHICH THE PILOT AND PASSENGER OWE THEIR MIRACULOUS ESCAPE FROM DEATH."

"Morning Bulletin,"
Rockhampton,
Queensland.
19*th September*, 1928.

HANDLEY PAGE, LTD.,
Cricklewood,
London, N.W.2.

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. J. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Nov. 24.

Instructor: G. R. Beck. *Ground Engineer*: R. Morris. *Aircraft*: 3 (RF, TB and SV).

Flying Time: 4 hr. 50 min.; *Instruction*: 4 (1 hr 20 min.); *"A" Pilots*: 6 (2 hr. 55 min.); *Passengers*: 2 (20 min.); *Tests*: 3 (15 min.).

Notes.—Extremely bad weather throughout the week except for one day, on which the flying recorded above was done.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, The Hampshire Aeroplane Club, Hamble.]

Aerodrome: Southampton Aerodrome, Hamble.

Report for week ending Nov. 25.

Instructors: Flt. Lt. F. A. Swoffer, M.B.E., and W. H. Dudley. *Ground Engineers*: E. Lenny and J. Elliott. *Aircraft*: 2 (OI and OH).

Flying Time: 14 hr. 15 min.; *Instruction*: 14 (8 hr. 10 min.); *Soloists*: 2 (1 hr. 50 min.); *"A" Pilots*: 6 (3 hr. 20 min.); *Passengers*: 2 (25 min.); *Tests*: 6 (30 min.).

Notes.—Continuous bad weather. Machines have only been able to leave the hangar on two days. However, Lt. Oswald was able to pass the tests for his "A" Licence.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadleigh, Suffolk.]

Report for week ending Nov. 17.

Instructor: G. E. Lowdell, A.F.M. *Ground Engineers*: "C," E. Mayhew; "A," G. Keeley. *Aircraft*: 2 (RE and UH).

Flying Time: 9 hr. 45 min.; *Instruction*: 8 (7 hr. 20 min.); *Soloists (under instruction)*: 3 (1 hr. 30 min.); *"A" Pilots*: 2 (25 min.); *Passengers*: 4 (10 min.); *Tests*: 20 min.

Notes.—The weather has not been very favourable so there is little of interest to report.

The Cambridge Aeroplane Club.—A branch of the Suffolk and Eastern Counties Aeroplane Club has now been opened. Flying takes place on Mondays and Thursdays from 10.00 hr. to half-an-hour before sunset. Members joining this branch before the end of 1928 will be excused the entrance fee of £3 3s. and will only have to pay the first annual subscription of £3 3s. The flying charges are £1 10s. for dual instruction per hour and £1 an hour for solo flying. Members of this branch may fly at Hadleigh when the Cambridge branch is not open and, of course, Suffolk members may go to Cambridge. As soon as the Cambridge membership warrants, a second instructor will be engaged and flying will take place at Conington Aerodrome every day. The aerodrome is one mile from the Cambridge—Huntingdon road and is 9 miles from Cambridge. It is easily accessible from Bedford, Huntingdon, Peterborough, etc. Further particulars may be obtained from the Secretary, Hadleigh Aerodrome, Hadleigh, Suffolk, or from the Hon. Sec. of the Cambridge Aeroplane Club, J. W. Wedd, The Cross, Melbourn, Cambs.

The Ipswich—Cambridge Airway.—A bi-weekly air service in connection with the Suffolk and Cambridge Aeroplane Clubs will be operated between Ipswich and Cambridge on Mondays and Thursdays, leaving Hadleigh Aerodrome at 09.00 hr. and returning from Conington at 15.00 hr. The fares are £1 10s. single and £2 10s. return. Seats may be booked on application to the Secretary, Ipswich Aerodrome.

Report for week ending Nov. 24.

Instructor: G. E. Lowdell, A.F.M. *Ground Engineers*: "C," E. Mayhew; "A," G. Keeley. *Aircraft*: 3 (RE, SZ and UH).

Flying Time: 9 hr. 20 min.; *Instruction*: 9 (4 hr. 5 min.); *Soloists (under instruction)*: 1 (25 min.). *"A" Pilots*: 3 (1 hr. 25 min.); *Passengers*: 3 (20 min.); 3 trips were made and 3 passengers carried on the Ipswich—Cambridge Airway, 3 trips, 3 passengers (2 hr. 40 min.); *Tests*: 4 were made (25 min.).

Notes.—The week has been about as bad for flying as the British climate can manufacture, with the exception of fog. With several members trying to complete tests for "A" Licence before the close of the subsidy financial year we suspect the Treasury has been tampering with the Controller-General of Winds and Rain at the Air Ministry. If so we congratulate the latter department on a most successful effort.

The Cambridge Aeroplane Club.—In spite of the weather we were able to have the Cambridge Branch open on Monday and Thursday. The weather, however, prevented much activity. Mr. Hart, a new member, had his first trip in a Bluebird in a wind of some 40 m.p.h. Having already taken his "A" Licence on a Moth the conditions were suitable for advanced dual to become acquainted with the Bluebird. If we can get a spell of fairly quiet weather quite a number of new members will start instruction at the Cambridge Club, which promises to become a very robust offspring of the parent Club.

Ipswich—Cambridge Airway.—We appear to have selected the worst possible week to start a scheduled service as even "Giant Air Liners" have had to remain in their lairs on occasions. We are quite pleased, therefore, to have made three out of four trips to schedule. We might have completed the fourth but decided that discretion was the better part of valour.

The Norfolk and Norwich Aero Club.

[Sec.: G. McEwen, Mousehold Aerodrome, Sprowston, Norwich.]

Report for week ending Nov. 17.

Instructor: B. Young. *Ground Engineer*: A. Kirkby. *Aircraft*: 2 (ZW and QX).

Flying Time: 7 hr. 35 min.; *Instruction*: 2 (3 hr. 15 min.); *Soloists*: 3 (1 hr. 20 min.); *"A" Pilots*: 5 (3 hr.).

Report for week ending Nov. 24.

Flying Time: 1 hr. 50 min.; *Instruction*: 2 (1 hr.); *"A" Pilots*: 2 (45 min.); *Test*: 1 (5 min.).

Notes.—The last two weeks have been almost uneventful and the gales have practically stopped all flying. Only one day was fit for flying last week. All the rest of the time we looked for the roofs to disappear. Mousehold Aerodrome is quite high and the wind gets rather boisterous up there.

One enthusiastic member arrived from Wisbech, a distance of about 60 odd miles, in the teeth of a gale in the vain hope that he might fly. We like these members. They show the right spirit, and we were sorry we had to damp it on this occasion.

Liverpool and District Aero Club.

[Sec.: J. Ellis, Hooton Park Aerodrome, Wirral.]

Report for week ending Nov. 24.

Instructor: Flt. Lt. J. B. Allen. *Ground Engineer*: H. Pixton. *Aircraft*: 2 (WK and XY).

Flying Time: 13 hr. 20 min.; *Instruction*: 17 (8 hr. 40 min.); *Soloists*: 2 (1 hr. 30 min.); *"A" Pilots*: 6 (2 hr. 45 min.); *Passenger*: 1 (15 min.); *Tests*: 5 (25 min.).

Notes.—Mr. Pixton has been leading a life of leisure, all machines being O.K. and the gale having prevented flying for the last three days.

Nature Note.—Our Blue Tit has gone. Mr. Pixton repaired the hole in XX's wing and we must regretfully conclude:—*"Blue tit got 'lit,' on dope—No hope in wing poor thing.—Wing repaired—Finis bird!"*

The Cinque Ports Flying Club.

[Hon. Sec.: R. Dallas Brett, 114, High Street, Hythe, Kent.]

Aerodrome: Lympne.

Report for week ending Nov. 24.

Instructor: H. G. Travers, D.S.C. *Ground Engineer*: R. H. Wynne. *Aircraft*: 2 (NN and YJ).

Flying Time: 4 hr. 40 min.; *Instruction*: 5 (3 hr. 15 min.); *Soloists (under instruction)*: 2 (1 hr. 15 min.); *Test*: 10 min.

Notes.—Another succession of gales stopped flying on all except two days this week.

There has been an immediate response from the Officers at the Small Arms School, Hythe, to our reduced terms recently announced. Three officers, Messrs. Wanliss, Harrison and Hamilton, have joined the Club during the week, and the two first-named have already started flying, Mr. Wanliss proving a very apt pupil.

Mr. E. T. Worsell, of Offham, West Malling, was launched solo on Sunday, Nov. 18. His first landing was not very good, but he very sensibly switched on and went round again, and his second approach and landing were far better. Mr. Worsell has been trying hard for a long time though he has little time at his disposal and a great distance to come for his flying.

The Scottish Flying Club.

[Sec.: George Baldwin, Moorpark Aerodrome, Renfrew.]

Report for week ending Nov. 24.

Instructor: R. M. Stirling. *Ground Engineer*: W. Calder. *Aircraft*: 2 (YG and TY).

Flying Time: 5 hr. 40 min.; *Instruction*: 3 hr. 40 min.; *Soloists*: 20 min.; *Joyrides and Tests*: 1 hr. 40 min.

Notes.—Instruction (with Mr Stirling): Mr. Fairweather, Mr. Aitken, Mr. Garbutt and Mr. Clark.

Flying practically at a standstill. Almost incessant high wind and torrential rain. On Friday the aerodrome presented a lake-like picture, inundated to a depth of nearly two feet at various points. Consequently little to report.

General regret will be felt at the loss the Club has sustained with the departure of Capt. A. N. Kingwill, who left Renfrew for the South on Thursday. As a founder of the Club and a member of the General Committee, Captain Kingwill has always been a most enthusiastic supporter, and his able advice, particularly in technical matters, has been most valuable. His place will not be easily filled.

The Singapore Flying Club.

[Sec.: H. S. Chapman.]

Report for week ending Oct. 13.

Instructor: H. S. Gaskell. *Seaplane*: 1.

Flying Time: 23 hr. 15 min.; *Soloists*: 10 min.; *Instruction*: 20 hr. 5 min.; *Photography*: 1 hr.; *Joy-rides*: 2 hr.

Notes.—As we have had only one machine available, the flying time during the week may be considered creditable. The main planes and forepart of the fuselage of G-EBUJ, which sank at her moorings last week, have had to be re-covered, and this machine is not likely to be ready for another ten days. The engine had suffered comparatively little through its immersion, but the opportunity has been taken to give it a complete overhaul. [What about corrosion of aluminium parts?—Ed.]

Report for week ending Oct. 20.

Flying Time: 21 hr. 4 min.; *Soloists*: 1 hr. 5 min.; *Instruction*: 16 hr. 13 min.; *Photography*: 1 hr. 5 min.; *Joy-rides*: 2 hr. 16 min. *Tests*: 25 min.

Notes.—Flying in the early mornings has been impossible on several days owing to rain. Apart from this the weather has been good. We now have several members ready to go solo but the Committee have decided not to launch any new pilots while there is only one machine.

Mr. L. W. Learmount came down from Kuala Lumpur for the week-end on Oct. 25. Up-country members are welcomed, and providing notice is received of their arrival they are given precedence over local members in flying time.

An Aeroplane Club for Whangarei, New Zealand.

The Inaugural Meeting of a proposed Aeroplane Club for Whangarei, N.Z., took place on April 24.

The organisers, Mr. A. D. Laurenson and Colonel Lockie, explained that services in connection with the Club would have to be voluntary but that the Government proposed to grant a subsidy of £25 for each member who qualified as a pilot. The requisite number of members had been promised, two of them being women.

A temporary committee was appointed for the purpose of endeavouring to obtain an aeroplane and to draft rules.

The Chairman, in concluding, thanked all present for their co-operation, and also the organisers for their untiring efforts in the formation of the Club.

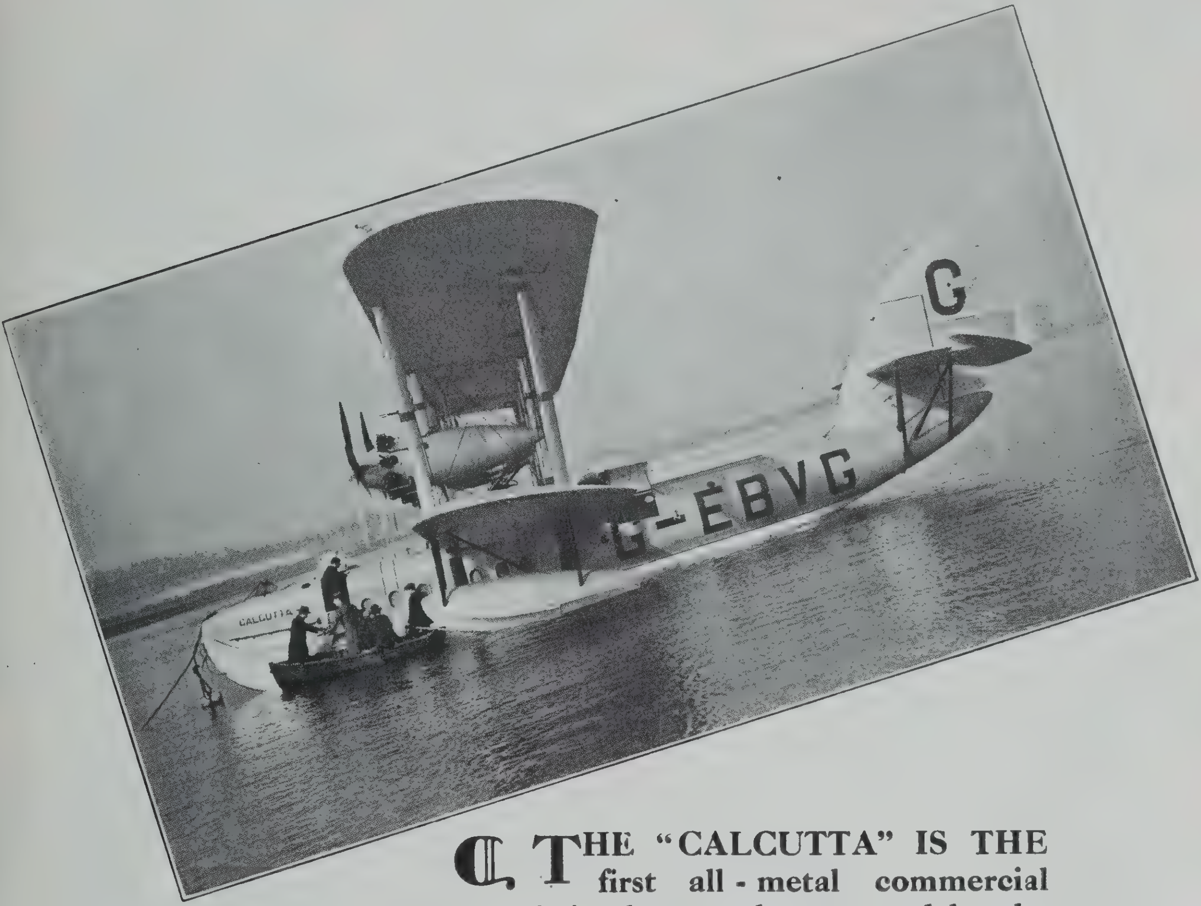
FLYING SCHOOLS.

The De Havilland Flying School.

Report for week ending Nov. 25.

Flying Time: 23 hr. 5 min.; *Instruction*: *Dual*, 7 hr. 30 min., *Solo* 8 hr. 35 min.; *Other Flying*: 7 hr.

Notes.—The low flying time is accounted for solely by the very high winds, which have swept the aerodrome for practically the whole of the week.



THE "CALCUTTA" IS THE first all-metal commercial flying-boat to be operated by the British air lines. It accommodates 15 passengers besides a crew of three, with all necessary equipment and stores.

This machine has demonstrated its ability to take off from the water fully laden on two engines only—time 42 seconds; headwind 10 miles per hour.

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 5; Monday, 15; Tuesday, 18; Wednesday, 16; Thursday, 17; Friday, 7; Saturday, 4.

Imperial Airways Ltd.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 36, passengers 251, freight 11 tons.

Air Union:
Paris—London and return: Machines 17, passengers 53, freight 11 tons.

K.L.M.:
Amsterdam—Rotterdam—London and return: Machines 10, passengers 31, freight 3¾ tons.

Sabena:
Brussels—London and return: Machines 9, passengers 16, freight 3 tons.

Deutsche Lufthansa A.G.:
Amsterdam—London and return: Machines 10, passengers 25, freight 2 tons.

Miscellaneous:
British machines 0, passengers 0.
Foreign machines 0, passengers 0.

Total number of trips by British Machines, 36, carrying 251 passengers. Foreign Machines, 46, carrying 125 passengers.

COMPARATIVE FIGURES.

Week ending Nov. 24:
Machines, 82; Passengers, 376; Crews, 164; Total personnel, 540.
Corresponding week, 1927:
Machines, 60; Passengers, 162; Crews, 109; Total personnel, 271.
Corresponding week, 1926:
Machines, 55; Passengers, 114; Crews, 68; Total personnel, 182.
Corresponding week, 1925:
Machines, 36; Passengers, 79; Crews, 41; Total personnel, 120.
Corresponding week, 1924:
Machines, 75; Passengers, 213; Crews, 98; Total personnel, 311.
Corresponding week, 1923:
Machines, 15; Passengers, 24; Crews, 23; Total personnel, 47.
Corresponding week, 1922:
Machines, 49; Passengers, 120; Crews, 94; Total personnel, 214.
Corresponding week, 1921:
Machines, 19; Passengers, 13; Crews, 30; Total personnel, 43.
Corresponding week, 1920:
Machines, 39; Passengers, 58; Crews, 45; Total personnel, 103.

Croydon Notes.

Gales on Friday seem to be becoming a habit. That of the last Friday was preceded by less unpleasant conditions than marked the Friday before, and the gale itself was if anything a little less fierce, but it sufficed to stop all flying after 11.00 hours. Moreover, it was renewed on Saturday afternoon, and on Sunday raged even more furiously. The anemometer readings over this last week-end did not, so far as is known, quite equal last week's record, but in respect of long-sustained wind-speed they have seldom been equalled in Southern England.

Those machines which actually flew on Friday and Saturday morning encountered weather of a severity wherein no machine would have attempted to fly a few years ago, and all of them completed their journeys safely. Moreover, they most of them carried a fair number of passengers, who are not nowadays it seems deterred by the prospects of a really rough weather in an aeroplane to the same extent as are passengers by cross-Channel steamer.

The latest news of Mr. Smith, of Surrey Flying Services, who was severely injured when the D.H.9 he was flying collided with a house at Sanderstead on Saturday, Nov. 17, is reassuring. He has been found to have no broken bones and no serious internal injuries. He received a severe blow on the head and was unconscious until Thursday. His condition is, of course, still serious, but he is making good progress.

The general opinion as to the cause of his accident is that something went wrong with the control gear. The engine, it is asserted on excellent authority, was running right up to the last, and there is no suspicion of stalling having occurred.

A new Breguet machine has recently made one or two visits to Croydon in the course of service tests by the Air Union. This is the Breguet 280T, a commercial version of the famous XIX type, with a swollen-up fuselage enclosing a passenger cabin, and a Jupiter engine. Despite the excellent performance of this type, general opinion at Croydon does not regard it as an ideal commercial machine. This, of course, may be merely insular prejudice, but it is little disconcerting to have to disconnect all the main flyin wires in order to change a wheel.

FRENCH COMMERCIAL AVIATION.

According to the Paris correspondent of *The Times* M Poincaré attended a plenary meeting of the National Economic Council on Nov. 23 and in the course of a speech o economic organisation stated that commercial aviation coul not be left in its present state of confusion. *The Time* says:—

> Among the measures recommended in the report from the Nationa Economic Council was the creation of a Supreme Air Counci which would control all air policy. It would develop given route ensure the regular replacement of material, direct training and technica research, develop an effective system of inspection and maintenanc and be responsible for economic results.
>
> Two different methods of exploitation had been proposed, and it woul fall to the Government to choose between them. If the first metho were chosen, the State would assume the greater part of the responsibilities of commercial air transport and would not only retai ultimate control, but would take part in management. Local governing bodies, chambers of commerce and agriculture, railway and shipping companies, and seaports would be associated with the Stat in this enterprise.
>
> If the second method were adopted, although the State would giv the necessary support to aviation, it would take no part in management, which would remain in private hands. The State would, however, intervene where necessary to prevent its subsidies from bein wasted by the harmful competition of innumerable companies.
>
> M. Poincaré did not say which of these systems the Governmer intended to adopt. It appears certain, however, that the choice c the Air Minister has already fallen in principle upon the secon system, though he will no doubt insist on maintaining effective Stat control of policy, while taking full advantage of private enterprise i exploitation.
>
> The Prime Minister also referred to reports which had been received on the postal, telegraph, and telephone services, on nationa savings, and on the equipment of industry. He considered that th Post Office was not yet satisfactory, but even experts were not ye agreed upon the methods by which it could be improved. Th report on savings said that reforms in taxation should be made a fast as the budgetary position would allow.

AIR MAIL TO SOUTH AMERICA.

The first air mail from France to Chile arrived at Santiag de Chile on Nov. 19, ten days after leaving Toulouse. Th mail was carried by air from Toulouse to Dakar and fron Pernambuco to Buenos Aires and thence to Santiago d Chile. The central section from Dakar to Pernambuco i operated by despatch-boats loaned by the French Government.

WINTER SERVICES TO SCANDINAVIA.

One of the signs of the times is the announcement in th L.N.E. Rly. Co.'s time table of Continental services of th joint train, boat and air service between London and Scandinavia. The shortened hours of daylight in winter do no permit of a through service from Croydon to Copenhage and Mälmo in the day, but passengers may leave Liverpoo Street Station by the Harwich boat train at 20.15 hours i the evening, reach Amsterdam via the Hook of Holland a 08.44 hours next morning, where they are met by K.L.M. car taken to Schipol aerodrome, and leaving by air at 09.45 hour may reach Hamburg at 12.55 hours, Copenhagen at 15.0 hours, and Mälmo at 15.35 hours.

On the return journey Mälmo is left by air at 09.00 hours Copenhagen at 09.30 hours, Hamburg at 12.00 hours an Schipol (Amsterdam) is reached at 14.20 hours. Leavin Amsterdam at 21.00 hours, the passenger reaches Liverpoo Street at 08.38 hours next morning.

CIVIL AVIATION IN CHINA.

A representative of the Deutsche Luft Hansa is at presen in Nanking, where he is negotiating with representatives o the Chinese Nationalist Government concerning the formation of an "Aviation Corporation."

Reports state that the Luft Hansa has offered to undertak a mail and passenger service between Berlin and Nankin by way of Moscow and Peking, but this cannot take definit shape until negotiations still in progress with the Sovie Authorities have been concluded. Any negotiations now being carried on can only concern the institution of an ai service in China, but there is no doubt that a service to th Far East plays a part in the ultimate plans of the Luf Hansa.

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THE LONDON—STOCKHOLM AIR SERVICE.

A regular daily air service between London and Stockholm will be inaugurated early next year by the Swedish Aerotransport A.B.

CHRISTMAS STATIONERY.

The Aircraft and General Fine Art Company of Constitution Buildings, East Grinstead, Sussex, the principal of which is Mr. W. E. Johns, late R.A.F., have just issued a list of Christmas stationery which should be of particular interest to readers of THE AEROPLANE. The list illustrates in colours samples of the various calendars and Christmas cards which the firm can supply from stock. The list also gives the names of agents in London and the suburbs and provincial towns from whom this stationery can be had from stock. Readers who want to get off their Christmas cards in good time will be well advised to write for a copy of this list.

PERSONAL NOTICES.

DEATH.

ARCHER.—On Nov. 24, as the result of a flying accident at Grantham on Oct. 31, Flt. Lt. Gordon Archer, R.A.F.

Flt. Lt. Archer joined the R.A.F. in 1918. In 1920 he underwent a course of flying training at Netheravon and in May, 1921, he was posted to No. 45 (Bombing) Squadron at Hinaidi. He was transferred to No. 216 (Bombing) Squadron at Heliopolis, Egypt, in October, 1923. At the end of 1925 he was restored to the Home Establishment and in March, 1926, he was posted to No. 7 (Bombing) Squadron, then at Bircham Newton. In November, 1926, he was posted to No. 503 Squadron at Waddington as part of the regular establishment of this Special Reserve Unit. In December, 1927, he became an instructor at No. 2 F.T.S., Digby, and in April, 1928, he was transferred to the staff of No. 3 F.T.S., Grantham. He was promoted to be Flight Lieutenant in July, 1925.

MARRIAGES.

ALLINSON—HALL.—On Nov. 20, at Holy Trinity, Brompton, Norman Stuart Allinson, R.A.F., to Florence Muriel (Bunty) Hall, only daughter of the late Mr. and Mrs. G. B. Hall, of Eastbourne.

THOMPSON—HULTON.—On Nov. 21, at Prince's Row Register Office, Mr. John Henry Thompson, late King's African Rifles and the R.A.F., to Lady Hulton, widow of Sir Edward Hulton, of 50, Upper Brook Street.

FORTHCOMING MARRIAGE.

BROWN—HAYWARD.—The marriage of Flg. Off. Robert Bayne Brown, R.A.F., younger son of Mr. and Mrs. J. D. Brown, of Crooked Meadow, Ashtead, Surrey, and Kathleen, youngest daughter of Mr. and Mrs. R. C. Hayward, of Alton, Hampshire, will take place, very quietly, at Holy Trinity, Sloane Street, on Dec. 5, at 2.30

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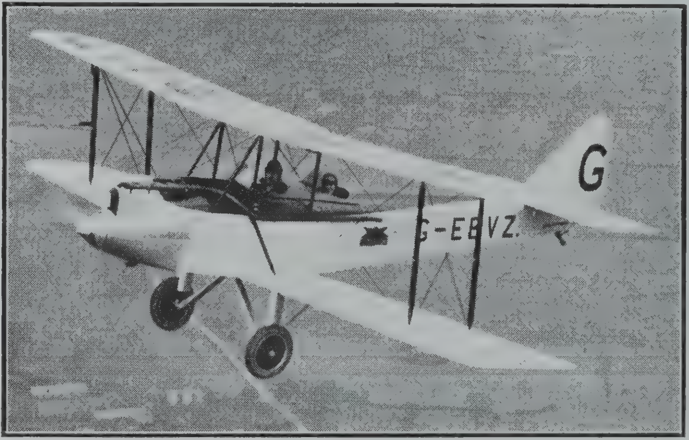

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THE AEROPLANE—DEC. 5, 1928.

INTERNATIONAL AIRWORTHINESS

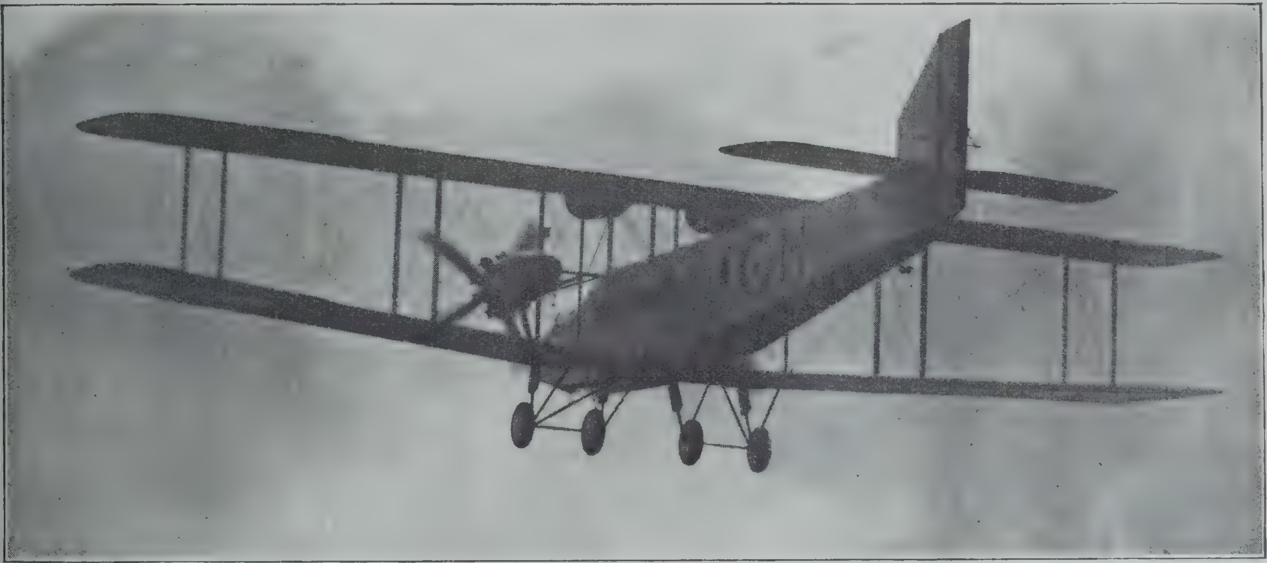
THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXXV. No. 23. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"NOW CAME STILL EVENING ON, AND TWILIGHT GREY,
HAD IN HER SOBER LIVERY ALL THINGS CLAD."—*(Milton.)*



A TROOP CARRIER:—The Handley Page Clive (Two 450 h.p. Bristol Jupiter VIII engines). This machine has accommodation for 23 armed infantrymen.—*(" Aeroplane " photograph.)*

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THE AEROPLANE

Incorporating
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VOL. XXXV
No. 23.

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ON AIRWORTHINESS.

Does anybody happen to know that the United States are at war with Great Britain? There are plenty of crazy people who tell us that we are going to have a war with America and there are others who for their own foul ends would like to see us at war, and do their best to foster a hostile spirit on both sides of the Atlantic. Personally one does not believe that we shall ever again fight the people of the United States, either on land or sea or in the air or under the sea. But we do, at the present moment, seem to be fighting them in hot air. And it is all over a little matter of airworthiness certificates.

We refuse to recognise American aircraft as airworthy, on the strength of their holding certificates of airworthiness from their own Departments of Civil Aviation, which is a sub-department of the U.S. Department of Commerce. As reciprocity cuts both ways, quite naturally the Authorities of the United States refuse to recognise our machines as airworthy, although they hold certificates of airworthiness from our Air Ministry. And, strangely enough, some people in this country cannot understand why.

This attitude is all part of that curious congenital self-esteem which causes the normal Englishman not merely to think but to know that he is of The Chosen People, and so is superior to anybody else in the World. And, of course, as all Americans who really matter are English, or Lowland Scots or Northern Irish, which amounts to the same thing, and are more English than the English themselves because they or their ancestors had enough self-esteem to get out and get on across the Atlantic, naturally the Americans are being just as obstinate over the argument as we are.

So English, You Know.

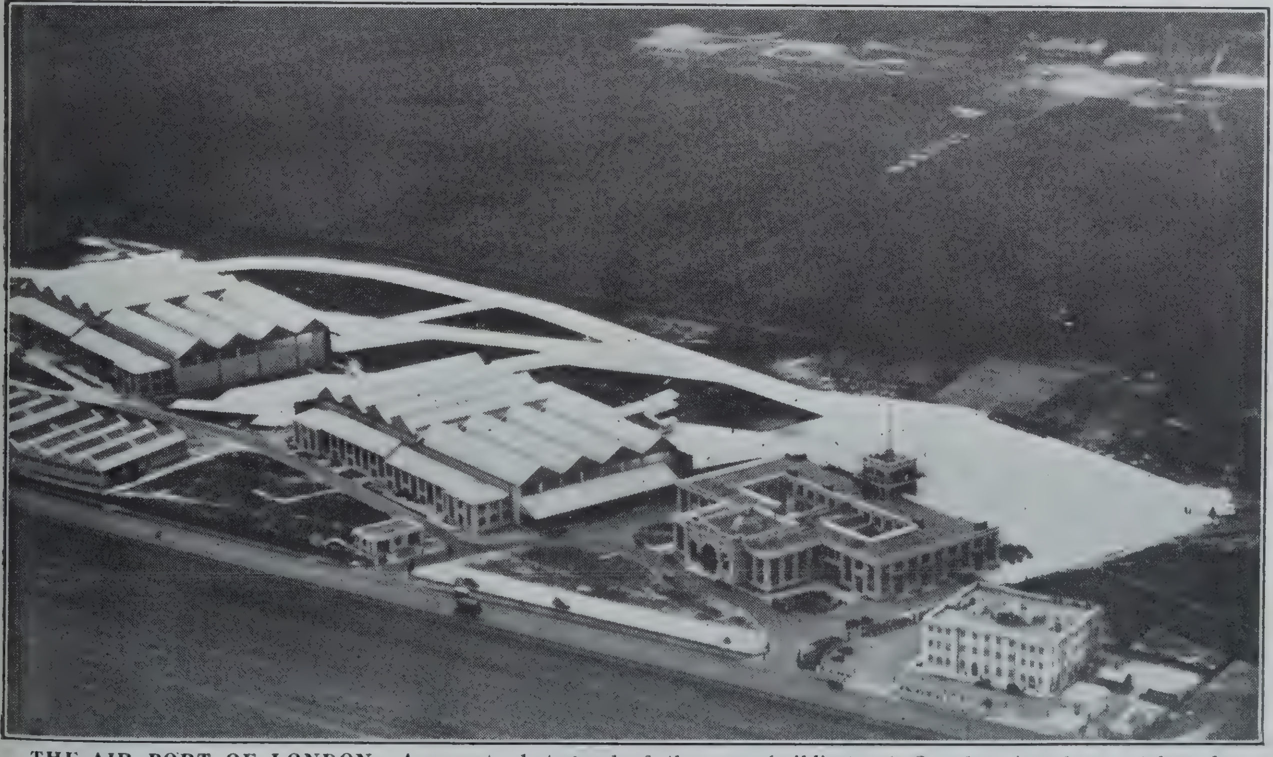
This peculiarly English attitude, which is common to ourselves and to the breed which is the motive power in the States, has never been more delightfully set forth than it was a few days ago in *The Daily Express* by that comic fellow "Beachcomber," who is certainly the sanest uncertified lunatic in England. Here is one of his little haphazard paragraphs.—

> A Warsaw message reports that the Norway State Railways yesterday placed fresh orders for 55,000 tons of Polish coal.
>
> Well, why not?

For the benefit of American readers to whom the jest may be a trifle too local for them to get the point at once, one may explain that the mere idea of Norway buying coal from anywhere other than England evidently came as a shock to the newspaper from which "Beachcomber" quoted the sentence. Of course, hardly anybody in England outside the Coal Trade has any suspicion that coal grows in Poland, or that any coal other than British is fit to buy. The cold sanity of "Beachcomber" is needed to drive home in two words the fact that there is no particular reason why anybody should be surprised at Norway buying Polish coal if it happens to be cheaper than British coal.

The mental attitude of the Englishman who cannot understand how any country can refuse to accept a British Certificate of Airworthiness, and at the same time cannot understand why the British Empire should accept a certificate of airworthiness issued by any other country is exactly that of the people who are surprised that Norway should buy Polish coal.

When one looks at the subject sanely, why on Earth should any other country admit that our machines are airworthy when we refuse to admit that theirs are? We cannot expect every other country to know that our Stress Department, which calculates the theoretical strength of a design from practical data, is quite one of the most reliable and trustworthy establishments which has ever dealt with the prac-



THE AIR PORT OF LONDON.—A recent photograph of the new buildings at Croydon Aerodrome taken by Aerofilms Ltd. In the top right-hand corner may be seen the scars left by the old aerodrome buildings, all of which have been removed with the exception of the engine test-house of Imperial Airways. In the bottom right-hand corner is the Aerodrome Hotel.

tical application of scientific theory. Nor can we expect everybody to know that our Aeronautical Inspection Department, which gauges and tests all the material which goes into our aircraft, Service and Civil, and inspects the workmanship and assembling of every aeroplane and aero-engine, is manned throughout by people of unquestionable experience and unimpeachable honesty.

We know it, and consequently we know that all British aircraft are as thoroughly airworthy as any human product can possibly be. And we do our best to impress these facts on other nations. But, on certain parts of the Continent, at any rate, *Albion* is still considered *perfide*.

Made Abroad.

We, on the other hand, have if anything a greater distrust of goods made abroad. Until comparatively recently "Made in America" suggested articles stamped out of tin and stuck together with bits of wire. "Made in Germany" suggested clumsy rough castings, and "Made in France" suggested pretty paint-work and precious little else. Only of late years have we discovered that the average American automobile can see most English motor-cars off the road for performance and equipment and comfort, and that German goods, though a trifle solid, are very sound and trustworthy, and that though French material and workmanship are apt to be erratic the whole article is nearly always designed by real brains, and that Italian products are still made by artist-artisans.

At the finish, if you want the very best possible of any thing in the World, you have to come to England to get it. If you want the best aeroplane, or the best ship, or the best motor-car, or the best pair of boots, or the best suit of clothes or the best watch, it is made in England. But for ordinary purposes, the products of other countries may be just as airworthy or seaworthy or roadworthy or wearworthy as our own—and with them we have to compete on price, and on delivery, and on giving the buyer what he wants.

What Is Worthiness?

Also the question arises as to what actually is airworthy or seaworthy or roadworthy as the case may be. For example, our idea of roadworthiness is a car so solidly built that it is ten years out-of-date before its owner is justified in putting it on the scrap-heap. The American idea of roadworthiness is a car which puts up a marvellous performance and is so cheap that the owner can afford to scrap it at the end of four or five years,—though, as a matter of fact, there are plenty of American cars ten years old or more still doing good service. So there is always a possibility that in our desire for absolute airworthiness we may be asking too much,—though personally one does not think so.

Furthermore, all nations at present rely on their high-browed scientists for their stress-calculations (which decide the size of spars and the dimensions of struts and the strengths of materials and so forth). And the different nations do not agree as to the methods by which these calculations are worked out.

One does not profess to understand these things, because the sight of more than three figures in a row, horizontally or vertically, puts one completely out of control. But people who do understand them say that, for example, the French airworthiness qualifications are notoriously, and dangerously, lower than ours, whereas, according to the French method of calculation some of our best machines would not be considered airworthy in France. Apparently the French *Section Technique* is satisfied that their method of calculation is right and ours is wrong, and they have a perfect right to their own opinions. And anyhow, in any profession in the World you can always find two specialists of equally high standing to contradict one another flatly on any subject.

So long as we depend on theoretical calculations, or at any rate until all nations agree to use the same method of calculation, there does not seem to be any hope of arriving at international agreement.

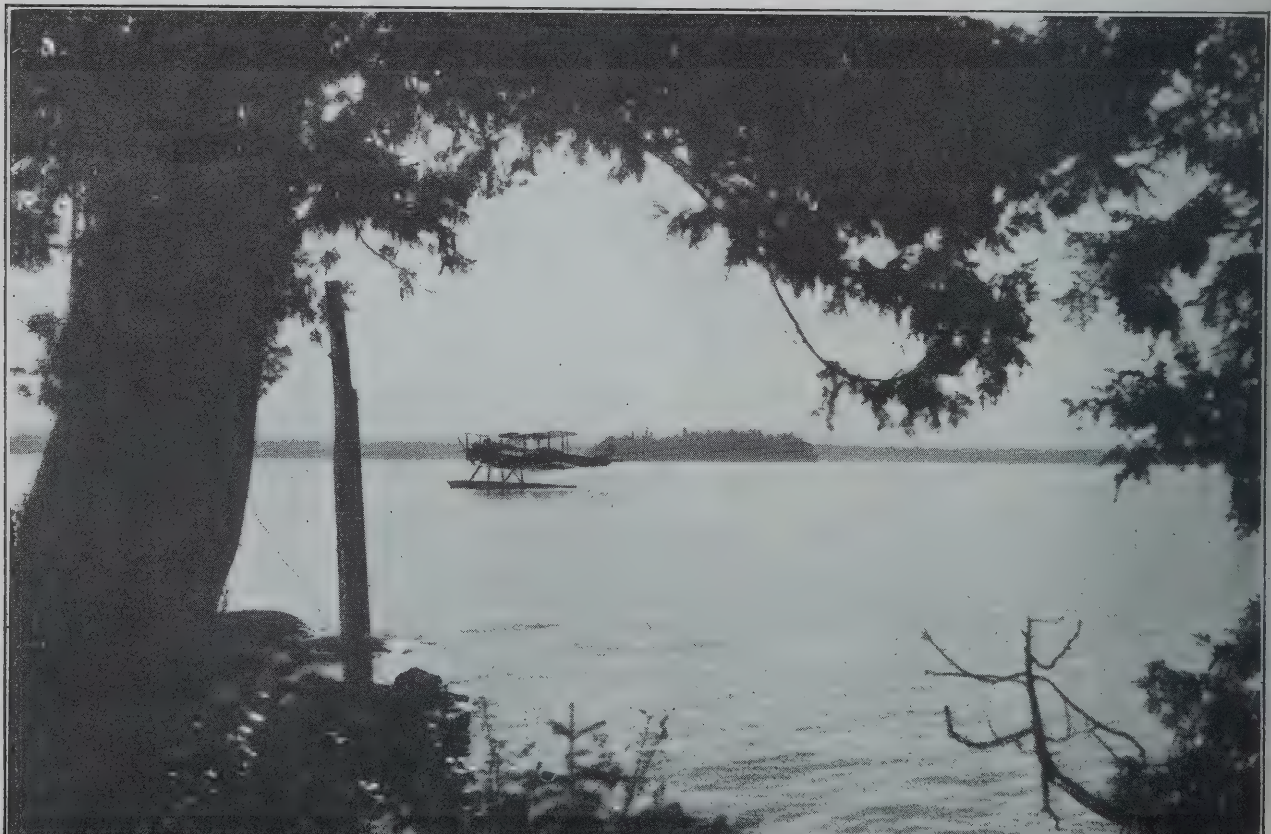
In one country wings may collapse in the air and tails may come off, but the scientists of that country may be quite satisfied that theoretically they are strong enough because their method of calculations shows them to be so. And according to their method of calculation they may be able to show that according to their regulations our undercarriages are unsafe.

Relative Inspections.

So far as French aircraft are concerned, one gathers that the official methods of calculation are all right in theory, but the inspection of machines while under construction are not as thorough as ours. Also there is little doubt that the French system of inspecting machines day by day while they are actually in use is not as thorough as ours—at any rate, judging by what the air-line people of other nations on the Continent say about French machines operating to and from their aerodromes.

Our ground engineers in this country, whether employed by flying-clubs or taxi-services or our one and only Imperial Airway, certainly do seem to be more thorough in their work than those of any other country. And our authorities are more insistent upon the proper keeping of log-books and the proper handing-in of reports.

So far as the trouble between ourselves and the United States is concerned, apparently there is no argument about



IN THE BACKWOODS.—A D.H.61 seaplane (450 h.p. Bristol Jupiter VIII engine) belonging to the Ontario Provincial Air Service in a picturesque setting.

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the strengths required by the stress-merchants employed by the Department of Commerce, which does the same work in the States as is done by our Department of Civil Aviation. American requirements seem to be just as good as ours. Our trouble seems to be simply that because of the enormous expansion of aircraft production in the States, and the comparatively small number of the personnel employed by the Department of Commerce, there is no possibility of inspecting each of their aeroplanes while it is being built.

Judging by the output of aircraft in the United States this year, the Department of Commerce would have to maintain an Aeronautical Inspection personnel about four times as big as the whole of our A.I.D. Quite reliable estimates say that some five thousand aircraft will have been built by the end of this year in the States and that at least ten thousand will be built in 1929. One aircraft firm advertises proudly that it produces a machine every two hours every working day of the year,—and that is not the biggest aircraft firm in the States.

Added to the mere question of output there is the fact that the Aircraft Industry in the States is so scattered over thousands of miles of territory that if the system of inspection were as thorough as is ours the travelling expenses alone of the Inspection Staff would be about equal to the whole of the wages of our A.I.D.

That being so, naturally we are a little bit doubtful about granting airworthiness certificates to American aircraft which will allow them to fly over here for hire or reward. But one gathers that if an American owner brings an American machine over here with an American certificate he will be given permission to fly that machine about the country for his own private use. And if he likes to hire an English pilot to fly it, the said pilot is quite at liberty to do so at his own risk.

Pilots' Licences.

On this point there is another disagreement between us and the United States. A suggestion seems to have been made by this country that we should interchange a recognition of pilots' licences with the States, and that the Department of Commerce refuses to recognise our pilots' licences unless we recognise their certificates of airworthiness.

Just why such a proposal should ever have been made, officially or semi-officially, is not easy to understand. If a fully-qualified British pilot goes to the States, surely he cannot have much trouble in passing the tests imposed by the Department of Commerce. They are certainly not likely to be any more severe than our own.

Anyhow, the United States Department of Commerce took the view that a great many more British pilots would be wanting to go to the United States to get jobs than there would be American pilots coming to England looking for jobs. That seems true enough. But if a British pilot goes to the States to look for work, he has to get himself put down for inclusion in the Immigration Quota, which means that he has made up his mind to go and live in the States, and if he has made up his mind that much, he may as well make up his mind to qualify as an American pilot.

Similarly, if an American pilot were to come over here, he would need very little time or money to pass for his " B " licence, if he were up to our standard physically, and as a pilot. Judging by some of our " B " pilots, anybody who is sound in wind and limb can get a licence to fly for hire or reward.

This seems to be a matter which could quite easily be left for the individual to work out on his own merits. Pilots are not recognised as exportable goods, and no industry makes a profit out of manufacturing pilots for export, so why need anybody worry about them?

Be that as it may, the U.S. Department of Commerce seems to have stated that they would be quite willing to interchange a recognition of pilots' licences provided that our Air Ministry would do the same for aeroplane certificates. So apparently by standing out over a point which is of no commercial importance to anybody except a few odd pilots who are not clever enough to make a living in this country, our Air Ministry has got America's official back up over a matter which is really of vast commercial importance.

An American Complaint.

Curiously enough the subject of this article has not been raised by a British aircraft manufacturer. It has been raised by perfectly good 100% Americans in the United States who are interested in importing British aircraft.

The people chiefly concerned in such business at the moment are American agents and sub-agents in various parts of the States for De Havilland Moths and Avro Avians. Arrangements have been made in the States to manufacture both these machines under licence, but in the meantime the American agents want to get sample machines flying in various parts of the States so as to make a market for those which they want to import until such time as their production plants are beginning to turn out machines. And the American regulations have absolutely put a stop to this preliminary work.

According to the regulations of the Department of Commerce, a licensed pilot is forbidden to fly an unlicensed aeroplane. So far as the sale of British machines to private owners in the States is concerned this does not affect the question, because in the States a private owner, once he has got what corresponds to our " A " certificate, can fly anything he likes. But it does prevent agents for British machines from putting up professional pilots to demonstrate the machines. All these professional pilots hold what are called " Transport " licences, which correspond with our " B " licences, and they would be violating the law by demonstrating, that is to say flying for hire or reward, on unlicensed machines.

A Way Out.

There seems to be a comparatively easy way out of this trouble. All the American agents have to do is to find a few thoroughly competent pilots who hold licences as private owners, but not as professional pilots. And then they can go and demonstrate Avians and Moths and Bluebirds and Widgeons and Spartans as much as they like, so long as they do not take up passengers for hire or reward.

If the prospective owner buys the machine, then, as the owner, he can ask anybody he jolly well pleases to fly the machine for him, whether the pilot has a transport licence or not.

Somewhat similar conditions can be imgained in this country. There are certain "A" pilots here who, owing to some physical defect, cannot qualify for " B " licences although they are known to be very much sounder and more careful pilots than many of those who have " B " licences. If a private owner happened to like one of those men, and trusted his ability as a pilot, there is nothing to prevent the owner from engaging that man as a private-secretary or a chauffeur or a gardener, and letting him fly the machine whenever he wants it flown.

From one point of view one is in favour of refusing to grant licences to any foreign machines whatever in this country. If we are going to be protectionists, then for Heaven's sake let us go the whole hog and let us be prohibitionists. But, if we do, we have got to recognise the fact that prohibition is a game which two can play, and that if we prohibit other people's machines from flying in this country we must expect them to prohibit ours.

Self-Interest.

From another point of view one is entirely in favour of Free Trade. If a number of American airplane manufacturers started in to sell their aircraft in the British Isles and in the British Empire they would very soon find that the best way of doing so would be to advertise largely in The Aeroplane.

In that case competition would certainly be good for trade, for British aircraft manufacturers would be obliged to advertise still more largely in competitions with the Americans and the result would be that The Aeroplane would very soon become a much larger and fatter paper with a great many more editorial pages in which to deal adequately with the news of aviation all over the World and with the problems which constantly crop up as to the best way of improving aircraft and aero-engines.

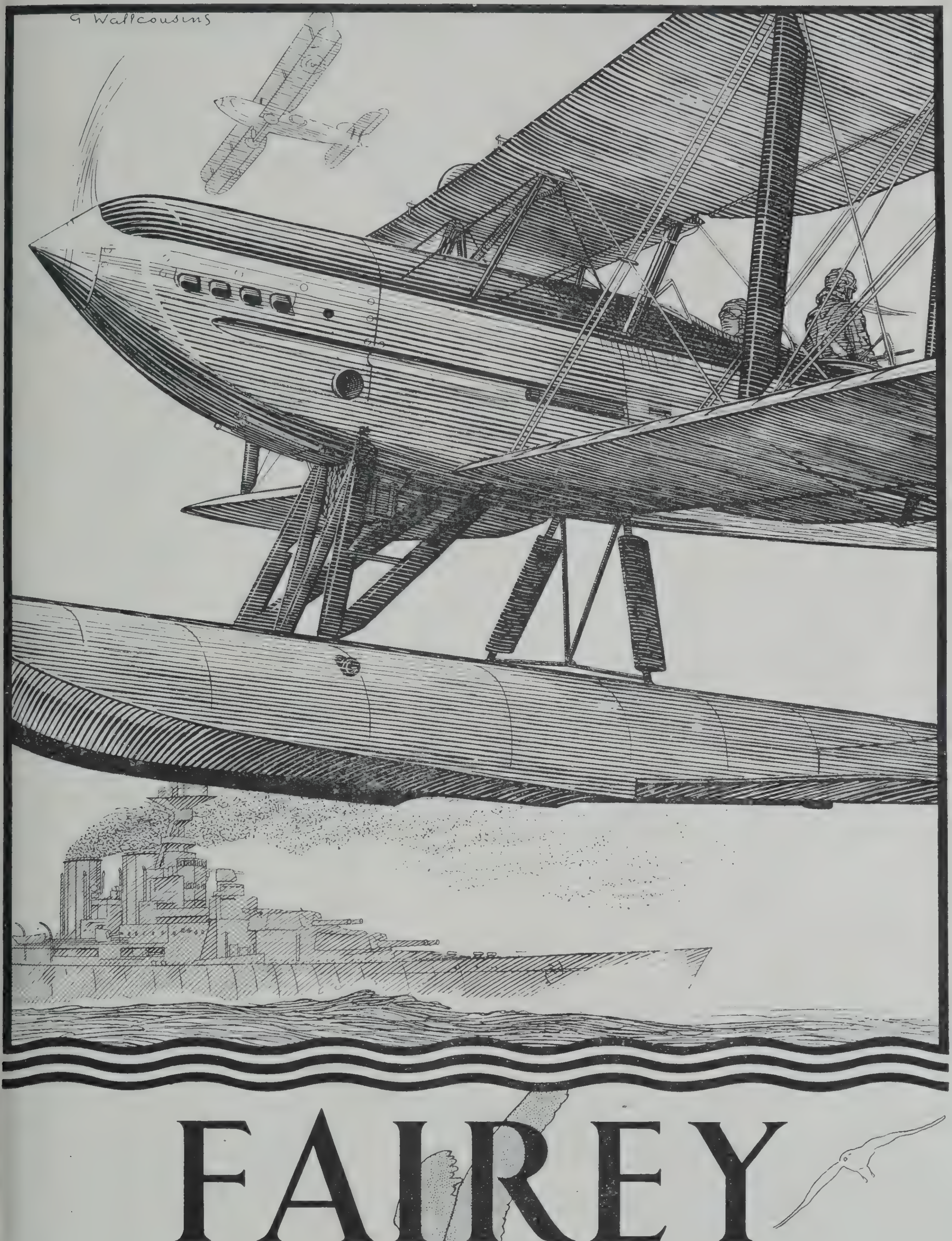
Also if some of the best American airplanes were sold over here and came to show us what good American machines can do and the price at which they can be sold, the sight of the machines on the spot and actual demonstration of their performance, which could not be doubted as are statements of performance when they merely appear in print, would certainly spur our manufacturers to greater efforts.

English motor-cars of to-day are what they are very largely because of keen competition of American cars. And the more modern American cars, with the very much improved lines of the past two years, owe their improvement and appearance very largely to competition with English cars. Everybody has profited all the way round, manufacturers and users alike, and similar competition would be a very good thing for the progress of aviation.

On the other hand, if certain American manufacturers of thoroughly bad aeroplanes tried to sell their products over here they would fall to pieces, either in the air or on the ground. Besides killing a few foolish aviators who trusted them, they would also kill their own business. This would be the best possible advertisement for the reliability of British aircraft, and to that extent they would do good.

To be quite serious, there is actually everything in favour of a complete mutual recognition and interchange of certificates both for aeroplanes and pilots. Our airworthiness requirements may be a bit higher in some ways than those of the U.S. Government, but no make of American airplane with a good reputation such as is likely to find a market over here would be likely to go wrong.

If any make gave trouble it would probably kill its own



FAIREY
AIRCRAFT

THE FAIREY AVIATION COMPANY LTD., HAYES, MIDDLESEX.

market before it killed enough people to make any difference. And if it had the luck to kill its importer, probably people would say that it served him right for trying to sell an airplane instead of an aeroplane.

The British Standard.

If we are going to trade in other countries, other countries must be allowed to trade here. And buyers must take their own risks when they back their own judgment of what they are going to buy. But, just because that is so, there is every reason for maintaining the present high standard of the British airworthiness certificate.

There have been so many newcomers to aviation lately, that there seems reason for repeating a story of the very early days of Civil Aviation.—When our system of inspection and certification of Civil aircraft was first introduced, nearly everybody in the British Aircraft Industry squealed about the imposition of Government inspection. They talked of interference with Free Trade and the incubus of officialdom and so forth. But a shrewd and far-sighted Frenchman said, in effect, "Ah! You hypocritical English, how clever you are. You make all this outcry. But you know that in a few years British Certificates of Airworthiness will enable you to get a far higher price for your aircraft than any other country will get. Your Airworthiness Certificates will be for your aircraft what the Certificate A1 at Lloyd's is for your shipping. Shippers of any nation will pay higher rates for transport in British ships with an A1 at Lloyd's Certificate than they will in the best ships of any other nation. And just so you will get better prices for your aircraft."

Let us stick to our high requirements for our certificate. If necessary, let us have graded certificates and let us pass as merely airworthy aircraft and engines which are not up to our highest standard.

We do this now, to a certain extent, by giving certificates of airworthiness up to certain load limits. And we have a kind of special airworthiness certificate in that a machine which is fully up to strength is given an aerobatic certificate. Apparently, a pilot could be prosecuted for chucking stunts in any machine which had not such a certificate.

And so, having admitted grades of airworthiness in our own machines, let us accept the airworthiness of any machine which is certified by the Air Authorities of its own country. And let those who fly in it take their chance.—C. G. G.

THE VICKERS-SUPERMARINE COMBINE.

An official announcement has been issued to the effect that Vickers (Aviation) Ltd., a firm which is the property of Vickers Ltd., and exists for the manufacture of heavier-than-air aircraft, has acquired the whole of the share capital of the Supermarine Aviation Works Ltd.

One learns authoritatively that Squadron Commander James Bird, R.N., Rtd., who is Managing Director of the Supermarine Aviation Works Ltd., is now a Director of Vickers (Aviation) Ltd., and remains in command of the Supermarine Works.

So far as all except the financial people are concerned the Supermarine Aviation Works Ltd. will retain its separate entity with the same staff which has of late made the name Supermarine World-famous by the R.A.F.'s victory in the Schneider Trophy Contest last year, by the great voyage of the four Supermarine all-metal Southamptons, and by the recent high-speed flight which is *de facto,* if not *de jure,* the World's record for speed,—all these flights, incidentally, having been made with Napier engines.

For the benefit of newcomers to aviation something may well be said of the history of the Supermarine Company. It was founded in 1911 or 1912 by Mr. Noel Pemberton Billing, who had already then been adventuring for some years with gliders and had, in fact, started the first private aerodrome at Fambridge in Essex in 1909. At the Aero Show in 1914 a Supermarine Flying-boat was shown with the engine in a streamlined nacelle or power-egg of very modern aspect.

With Mr. Pemberton Billing at that time was associated Mr. Hubert Scott-Paine,—and when Mr. Pemberton Billing joined the R.N.A.S. at the outbreak of War, Mr. Scott Paine ran the Supermarine Works. Early in 1916, when Mr. Pemberton Billing went into Parliament to work the air agitation which resulted in the appointment of the Air Board which ultimately became the Air Ministry, he sold out completely his interest in the Supermarine Aviation Works.

Shortly afterwards Squadron-Commander James Bird, R.N., joined the firm as a Director. He and Mr. Scott-Paine continued to run the firm until 1924, when Mr. Scott-Paine's interests were bought out and the management of the firm came entirely into the hands of Squadron Commander Bird.

Here one may remark that Mr. Hubert Scott-Paine's brother, Mr. Victor Paine, has remained with the firm and has been concerned with what one might call its publicity and diplomacy department. Mr. Victor Paine's pet hobby happens to be photography and to this fact is largely due the unusually fine pictures of Supermarine flying-boats which appear so often in The Aeroplane and are so popular as decorations all over the World.

From its very beginning, as the name implies, the firm has been concerned primarily with the production of aircraft for use over the sea, and though it has built float machines with much success, as its production of racing craft shows, its chief interest has been centred on flying-boats which have steadily grown in size and improved in efficiency. Certainly the Supermarine flying-boat is in front of any other twin-engined flying-boat of its power in the World. Of late years the excellence of the Supermarine products have been largely due to Mr. R. J. Mitchell, the firm's chief engineer, who is rightly regarded among aeronautical technicians as being unsurpassed as a designer of sea-going aircraft.

With the World-wide sales organisation of Vickers Ltd. behind it and its own inherent soundness as designers and constructors of super-marine craft, one hopes to see the Supermarine Aviation Works Ltd. not only continuing but increasing its successes of the past few years.—C. G. G.

AIR COMMODORE CHAMIER'S APPOINTMENT.

Among the most notable of the many important happenings in the Aircraft Industry during the past few weeks is the acquisition by Vickers (Aviation) Ltd. of Air Commodore J. A. Chamier, C.B., C.M.G., O.B.E., D.S.O., who assumed office in the technical direction of this great firm on December 3.

Air Commodore Chamier was appointed Director of Technical Development at the Air Ministry under Sir John Higgins, Air Member for Supply and Research, as recently as December 13, 1927. In the past almost twelve months he has distinctly made his influence felt in a number of directions. He has never hesitated to cut through normal official procedure to get a job of work done. And he has been a powerful influence in expediting progress in British Aviation.

Among official people there is an axiom that if you never give an official decision you can never get into trouble for doing anything wrong. Group Capt. Chamier's whole career seems to have been based on the principle that those who never make mistakes never make anything else. He has never been afraid of making a mistake, and in consequence he has made very few. In fact, one cannot learn that he has ever made any mistakes in his Service career.

Many a time he has apparently ridden for a fall, as, for example, when he came home from India in 1927 to take on the job of Director of Technical Development and forthwith proceeded to stake his reputation on having Handley Page slots fitted at once to all Army Co-Operation machines. What is the precise proportion of Army Co-Operation machines fitted with slots one cannot say, but the plain fact remains that although until early this year Army Co-Operation machines were responsible for a high percentage of fatal accidents in the R.A.F. there have been no fatal accidents in such machines for many months.

Air Cmdre. Chamier always disclaims any pretence to being a scientist or an engineer. He went into the Army in 1902 from Sandhurst. He learned to fly at his own expense at Hendon in 1912, and he did not come into the R.F.C. as a flying officer until August 1915, after serving with his regiment, the 33rd Punjabis, in Egypt. But after that his progress was rapid. He was on Active Service with the R.F.C. and the R.A.F. practically until the Armistice. He was awarded the D.S.O. in 1917, the O.B.E. in 1918, the C.M.G. in 1919 and the C.B. in 1926. In 1920 he was Director of Operations and Intelligence at the Air Ministry. In 1923 he went to India for Air Staff duties.

In 1927, as already mentioned, he was brought back from India to do technical work,—another example of the way in which Sir John Higgins is able to choose a man for his ability and not for his academic qualifications. Nevertheless, Air Cmdre. Chamier has the best of all technical qualifications, namely his ability to see whether some technical development is practical, and if practical whether it has been developed into a working proposition.

In the R.F.C. he was one of the keenest workers for the progress of wireless, both W/T and R/T, and though primarily a Staff officer, after the Armistice he showed himself to be a better judge of technical affairs than the majority of highly qualified technicians and scientists.

Vickers (Aviation) Ltd. are to be congratulated on having acquired him. One only hopes that with the opportunities afforded by this great establishment he will do as much to speed up the progress of aviation as he could have done had he remained in the King's Service. Needless to say, his many friends in the Service and out of it will wish him every success.—C. G. G.

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THE AMERICAN COWLING FOR RADIAL ENGINES.

An article by Mr. F. E. Weick, of the staff of the United States National Advisory Committee for Aeronautics published in *Aviation* for Nov. 17, gives some interesting information as to the new type of cowling for radial air-cooled engines, concerning which a report was reproduced in THE AEROPLANE of Nov. 14.

This cowling was devised by the staff of the Langley Field Laboratory as the result of tests in the 20 ft. diameter wind tunnel, using the full-sized fuselage of a cabin monoplane and a Wright J.5 Whirlwind engine. A whole series of tests with cowlings ranging all the way from bare engine up to one totally enclosing the engine, were made—as mentioned in THE AEROPLANE last week. "Helmet"-type cowling such as has been used in Europe on Jupiter and other engines was apparently not tried because the Whirlwind,—in common with most other American radials—has so little room between cylinders that individual helmets are impracticable.

The type of cowling finally reached resembles outwardly that which was used on most rotary engines during the war, and completely surrounds the cylinder heads. Cooling air is admitted through a central annular orifice round the airscrew-shaft, and is discharged through a slot running the whole way round the body behind the engine,—like one long louvre in a motor-car bonnet. The exhaust was either discharged through this slot or was brought out under the fuselage in an ordinary exhaust-ring and pipe.

The form of slot was designed in accordance with knowledge gained from slotted wing tests, so that the issuing jet (or rather film) is tangential to the body surface, and serves to accelerate the boundary layer. Thus it is possible that the cowling not merely reduces engine drag, but actually improves the flow over the body.

Special measures had to be adopted to direct the air entering the cowling onto the hottest parts of the cylinders, and much experimental work was done before the necessary cooling could be provided without increasing the drag unduly. No information as to these interior arrangements is yet published.

After tests on the cabin fuselage further tests were made on a fuselage of smaller section—such as employed on military machines. These showed, as was suggested in the note in THE AEROPLANE already mentioned, that the effect of an uncowled radial engine on the resistance of a small body was much greater than that on the large body.

Full-scale tests on a Curtiss Hawk single-seater with Whirlwind engine fully confirmed the results of the wind tunnel work.

With the new cowling the speed of this machine was increased from 118 to 137 m.p.h.,—figures whose accuracy were regarded with some suspicion on the receipt of the original report. The most recent information indicates that some proportion of the gain was the result of improved airscrew efficiency, only about 70% of the effect being caused by direct reduction in body drag.

Mr. Weick in his account says that the result of this development is that the air-cooled radial can now be cooled without a greater amount of drag than is caused by radiators of water-cooled engines,—except in such cases as permit the use of wing radiators. But the design of this cowling requires so much care to ensure satisfactory results that it will probably have to be provided by the engine-makers for their own particular engines.

FRANK HEDGES BUTLER.

Readers of the paper will learn with much regret of the death of Mr. Frank Hedges Butler, one of the pioneers of British Aeronautics. Mr. Butler died in a nursing home at the age of 72.

Frank Hedges Butler was a partner in the famous firm of Hedges and Butler Ltd. of Regent Street, founded in 1667, the year of the Fire of London. He was the son of Mr. James Butler by his marriage to Miss Hedges, daughter of another partner in the firm.

In the course of his business he visited France, Spain and Portugal, buying wine. This work increased his natural love of travel and in consequence he visited most of the British Dominions Overseas and the majority of foreign nations all round the World.

He was one of the first British motorists, and bought his first car in 1897. And he was the first Honorary Treasurer of the Royal Automobile Club. Also he took part in the famous Thousand-Miles Trial organised by the Royal Automobile Club.

About the same time he was an ardent balloonist. In 1902 he made the longest solo balloon voyage recorded in England, and in 1905 he made the longest cross-Channel voyage by balloon,—from London to Caen in Normandy.

On September 24, 1901, while up in a balloon with his daughter, Miss Vera Butler, the Hon. Charles Rolls (later to found Rolls-Royce Ltd.), and Mr. Stanley Spencer, he was suddenly struck with the idea of founding an Aero Club. On landing this idea was put into practical form and the Aero Club was duly registered, the first members being the three already mentioned, together with the late Mr. Pollock and Mr. Stanley Spooner,—still happily the chief proprietor and editor of *Flight*.

At first the Aero Club was a part of the Automobile Club, not yet Royal. On November 15, 1901, the first balloon ascent organised by the Club was made from Chelsea, Miss Butler unfurling from the balloon at a height of some hundreds of feet, a 36 ft. banner bearing the words "The Aero Club." In 1904, Miss Butler married Colonel H. I. Nicholl, D.S.O., who is now a Director of Hedges and Butler Ltd.

When flying first began, Mr. Butler took a vivid interest in it and was one of the first to go to France in 1908, on the arrival of Wilbur Wright, to see the operations of his strange aeroplane. Mr. Butler shared with Mr. Griffith Brewer the honour of being the first Englishmen to fly,—albeit as passengers.

Thereafter, though Mr. Butler did little actual flying, he was always for many years a prominent figure at flying meetings, and only two or three years back one met him driving his own car at one of the Aero Club Meetings.

Apart from his interest in flying and motoring, Mr. Butler was a musician of a high order, and, according to *The Times*, actually played as a first violin at the Handel Festival at the Crystal Palace so far back as 1874. He founded several amateur orchestral societies, and introduced music to the Automobile Club in 1898.

In 1920 he summed up all his travels and adventures in an interesting book called "Fifty Years of Travel by Land, Water and Air," his travels including six visits to the wine vaults of Reims during the War. Later he made a trip round the World of which he told in "Round the World," published in 1925, a book of high value to World tourists and containing an earnest plea for an Empire Tourist Bureau. Both these books may well be of interest to World-touring aviators.

Frank Butler was a good friend, kindly, hospitable and cheerful. He had his full share of the good things of life and a long life in which to enjoy them.—C. G. G.

MR. SAMUEL WHITE.

Mr. Samuel White, Chairman of the Bristol Aeroplane Co. Ltd. and of the Bristol Tramways Co. Ltd., died on Nov. 29 at the age of 67.

In partnership with his brother, the late Sir George White, Bart., he organised the tramways system of Bristol and put in the first electric tramway system in England (the first in the British Isles was from Portrush to the Giant's Causeway). They built up the whole transport system of Bristol and its suburbs, including taxi-cabs and motor-'buses, with the result that more than twenty years ago, public transport in Bristol was better than that in any city in the British Isles, including London. To-day the Bristol Tramways Company's motor-'bus service operates practically all over what is commonly called the West Country.

In 1909, Sir George White founded the British and Colonial Aeroplane Co. Ltd., which was the first manufacturing undertaking in the British Empire formed to make aircraft. Mr. Samuel White co-operated heartily with his brother in what appeared to many people to be at best a sporting gamble and at worst a crazy idea.

With them were associated Sir George's son, Mr. Stanley White (now Sir Stanley), and his nephews, Mr. Sydney White-Smith (later to become Lieut.-Colonel, R.A.F.), Mr. Henry White-Smith (now Sir Henry, K.B.E.) and Mr. Herbert Thomas. After the death of Sir George in 1916, Sir Stanley became Managing Director of the firm with Mr. Samuel White as Chairman of Directors.

After the War, Lieut.-Col. White-Smith devoted himself entirely to the growing affairs of the Tramways Company and some years ago Sir Henry White-Smith left the firm, so that of recent years the control has been in the hands of Mr. Samuel White, Sir Stanley, and Mr. Herbert Thomas.

The success of the post-War policy of the firm may be gauged by the widespread use of the Jupiter engine. The widespread use by many nations of the various modifications of the Bristol Fighter show that the firm has maintained the high reputation for workmanship which Sir George and Mr. Samuel White laid down as its ruling principle at the very beginning. And the recent success of the Bristol Bulldog shows that the firm still holds its place in the front rank of aircraft constructors.

Mr. Samuel White was a bachelor. Apart from his aircraft interests he was a prominent member of the Bristol Stock Exchange and was recently Chairman of that Institution. Like his brother Sir George, he gave generously to the Bristol Hospital and other charities, and he was a pillar of the Church.—C. G. G.

Hello! that's old Peter going up solo. Nice take off . . . quite useful for a lad who's only had eight hours dual.

'Course, he started right . . . yes, on a Moth at one of the Clubs— most people do these days . . . wish there'd been Moths when I was learning.

Climbs well, that machine . . . oh, 'bout 5,000 ft. in nine minutes. Very pretty figure of eight he's doing . . . yes, you soon get confidence on a Moth.

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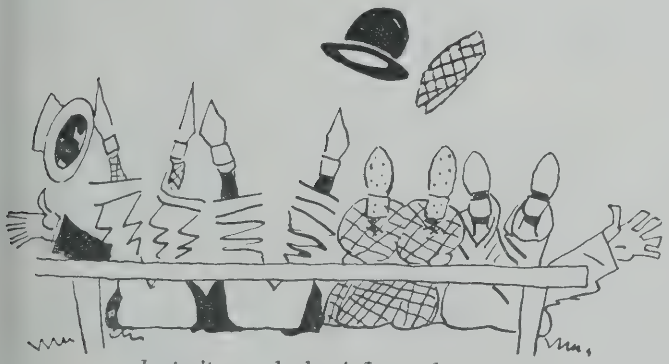

. . . he isn't . . . he has! I say, that was a stout effort! As neat a loop as any you'd see.

Congratters, Peter—good show! Here's to your Pilot's "A." What? Got it last week? My hat, the Moth does bring them along, doesn't it . . . of course, there's not a finer training machine.

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THE ROYAL AIR FORCE.

The London Gazette.

November 27.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—The following are granted perm. comns. in the ranks stated (Oct. 1):—Flt. Lt. D. W. Clappen, Flt. Lt. D. F. Lucking, Flg. Off. D. D. M. Eastwood.

Wing Cdr. O. T. Boyd, O.B.E., M.C., A.F.C., is seconded for three years' duty at the Staff College, Camberley (Jan. 22). (Substituted for the notification in the *Gazette* of Mar. 27.)

Flg. Off. H. A. M. Weir is transferred to the Reserve, Class C (Nov. 15); Lt.-Cdr. R. St. A. Malleson, R.N., Flt. Lt., R.A.F., ceases to be attached to the R.A.F. on return to Naval duty (Nov. 26); Plt Off. on probation H. Cook resigns his S.S. comn. (Nov. 16); the S.S. comn. of Plt. Off. on probation J. L. Smallwood is terminated on cessation of duty (Nov. 16).

STORES BRANCH.—Plt. Off. on probation O. D. Allerton is confirmed in rank and promoted to the rank of Flg. Off. (Oct. 15).

MEDICAL BRANCH.—Flg. Off. R. A. W. Kerr, M.B., is promoted to the rank of Flt. Lt. (Nov. 22); Flt. Lt. T. J. X. Canton, M.B., is promoted to the rank of Sq. Ldr. (Nov. 25); Flt. Lt. A. H. Mills (Temp. Capt., General List, Army Dental Surgeon) relinquishes his temp. comn. on completion of service (Nov. 11).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—The following officers on probation are confirmed in rank:—CLASS A.—Flg. Off. C. Byron, Flg. Off. A. W. Simon (Nov. 22). CLASS AA (ii).—Plt. Off. T. S. Dykes (Nov. 21).

SPECIAL RESERVE.—Plt. Off. N. D. Wardrop, Plt. Off. L. V. G. Barrow (Sept. 26).

The following officers are transferred from Class A to Class C:—Flg. Off. G. Clapham, A.F.C. (Nov. 17); Plt. Off. A. Barron (April 28). The following Flg. Offs. relinquish their comns. on completion of service:—C. G. Bloomer (Nov. 18); C. B. Bond (Nov. 19). The following Flg. Offs. relinquish their comns. on completion of service and are permitted to retain their rank:—J. A. H. Savage (Oct. 23); G. R. B. Smyth (Oct. 24). The notification in the *Gazette* of Nov. 13 concerning Flt. Lt. H. V. Stammers, D.F.C., is cancelled.

MEDICAL BRANCH.—Flg. Off. R. G. J. McCullagh relinquishes his comn. on completion of service (Oct. 4).

AUXILIARY AIR FORCE.

GENERAL DUTIES BRANCH.—NO. 602 CITY OF LONDON (BOMBING) SQUADRON.—Plt. Off. C. A. S. Parker is seconded for a further period of one year (Dec. 8).

Appointments.

Week ending December 3.

GENERAL DUTIES BRANCH.—Group Captain P. H. L. Playfair, M.C., to H.Q., Transjordan and Palestine, pending taking over command, 15/11.

Squadron Leaders N. C. Spratt, O.B.E., to R.A.F. Depot, Uxbridge, 4/11. C. O. F. Modin, D.S.C., to R.A.F. Depot, Uxbridge, 14/11. W. Sowrey, D.F.C., A.F.C., to H.Q., A.D.G.B., Uxbridge, 3/12.

Flight Lieutenants E. F. Turner, to Air Ministry (Signals Branch), 1/12. E. C. Delamain, M.C., to No. 3 F.T.S., Grantham, 19/11. C. H. Stilwell, to No. 2 Sqdn., Manston, 6/12. A. McR. Moffatt, to A. and G. School, Eastchurch, 26/10. E. D. Davis, to A. and G. School, Eastchurch, instead of to H.Q., Wessex Bombing Area, as previously notified. J. Marsden, to H.Q., A.D.G.B., Uxbridge, 28/11. A. P. Revington, to H.Q., 'Iraq Command, 22/11.

Flying Officers R. H. W. Empson, to A. and G. School, Eastchurch, 20/11. R. A. Whyte, to No. 5 F.T.S., Sealand, 10/11. A. E. Haes, to No. 101 Sqdn., Bircham Newton, 9/11. S. Pritchard-Barrett, to No. 3 F.T.S., Grantham, 28/12. G. L. Gandy, to No. 482 Flight, Cattewater, 10/11. J. S. Wilkins, to R.A.F. Depot, Middle East, 27/11. C. J. Stone, to E. and W. School, Flowerdown, 23/12. D. S. Brookes, to R.A.F. Depot, Middle East, 27/11. P. J. Bett, to No. 6 Sqdn., 'Iraq, 27/11. A. W. H. Nelson, to R.A.F. Depot, Uxbridge, 1/12. F. E. Nuttall, to R.A.F. Station, Duxford, 15/11. G. N. Pilcher, to No. 8 Sqdn., Aden Command, 24/11.

Pilot Officers J. L. Smallwood, to R.A.F. Depot, Uxbridge, 28/10. G. Wood, to No. 30 Sqdn., 'Iraq, 30/10. R. F. J. Doran Webb, to R.A.F. Depot, Uxbridge, 4/11. J. F. X. McKenna, E. M. Thomas, R. S. Collins, P. Kinsey and P. G. Thomson, to No. 3 F.T.S., Grantham, 7/11.

MEDICAL BRANCH.—Squadron Leader A. Briscoe, M.B., to R.A.F. British Hospital, Aden Command, 1/11.

Flight Lieutenant J. Hutchieson, M.B., to No. 5 Sqdn., India, instead of to H.Q., India, as previously notified. Flight Lieutenant (Q.M. Medical) F. W. Goodread, to H.Q., Inland Area, Stanmore, instead of to H.Q., A.D.G.B., as previously notified. Flight Lieutenant (Dental) A. R. H. Bennett, to R.A.F. Hospital, Cranwell, on appointment to a Temp. Comn., 12/11.

STORES BRANCH.—Flight Lieutenant H. E. T. Crocker, to No. 1 Stores Depot, Kidbrooke, 22/11. R. G. Gore, to H.Q., Transjordan and Palestine, 14/11.

Flying Officer C. I. Fry, to No. 3 Stores Depot, Milton, 22/11.

ACCOUNTANT BRANCH.—Flying Officer D. F. A. Clarke, to No. 2 Armoured Car Coy., Middle East, 18/11.

CHAPLAINS BRANCH.—The Rev. W. P. Hughes, to H.Q., 'Iraq, 30/10.

The Director of Technical Development.

Air Commodore F. V. Holt, C.M.G., D.S.O., has succeeded Air Commodore J. A. Chamier, C.B., C.M.G., D.S.O., O.B.E., as Director of Technical Development, Department of the Air Member for Supply and Research, Air Ministry.

Air Commodore Holt was born in London in 1886 and is the third son of the late Sir Vesey Holt, K.B.E. He was educated at Eton and the Royal Military College, Sandhurst, and entered the Oxfordshire and Buckinghamshire Light Infantry in 1905. He learned to fly on a Bristol biplane at Brooklands and his Royal Aero Club certificate, No. 312, is dated Oct. 1, 1912.

In April 1913 he was seconded to the Royal Flying Corps and was appointed Flight Commander in May 1914. He was promoted Captain in July 1914. He went to France in October 1914 and joined No. 4 Squadron. In February 1915 he was made a Companion of the Distinguished Service Order for gallantry on Jan. 22, 1915, "in engaging single-handed a group of 12 German aeroplanes which were attacking the town of Dunkirk. He was subsequently joined by two of our own biplanes, which resulted in one of the German machines being brought down and the pilot and observer captured."

He was made Squadron Commander with the temporary rank of Major in February 1915 and appointed to command the newly-formed No. 16 Squadron at La Gorgue. No. 16 Squadron consisted of Flights from No. 2 and No. 6 and No. 5 Squadrons and took a distinguished part in the battles of Neuve Chapelle and Aubers Ridge equipped with one B.E.2a, two B.E.2cs, three Voisins and four Maurice Farmans.

He was restored to the Home Establishment in July 1915, and in March 1916 he was appointed to command a Wing. He returned to France in February 1917 and from there he went to the Italian front. He was awarded a Brevet Majority in January 1917.

In April 1918 he was appointed to command the 9th Brigade, with the acting rank of Brigadier General.

In the New Year Honours of 1919 he was made a Companion of the Order of St. Michael and St. George for distinguished services rendered during the War. In August 1919 he resigned his Army commission on appointment to a permanent commission in the R.A.F. with the rank of Group Captain.

From February 1920 until September 1922 he was seconded to the Chinese Government as Aeronautical Adviser, for which services he was awarded the Order of the Striped Tiger (3rd class) by the Chinese Government. In January 1923 he was appointed to command the Central Flying School, Upavon.

In 1925 he underwent a course of instruction at the Royal Naval Staff College, Greenwich. He was promoted Air Commodore in July 1925. In April 1926 he was appointed to Headquarters, Air Defence of Great Britain, for Air Staff Duties.

Group Captain Playfair.

Group Captain P. H. L. Playfair, M.C., whose appointment to Headquarters, Transjordan, and Palestine, pending taking over the Command, is dated Nov. 11, was born in Edinburgh in 1889 and was educated at Cheltenham and the Royal Military Academy, Woolwich. He entered the Royal Artillery in 1910. He learned to fly on a Bristol biplane at Brooklands and his Royal Aero Club certificate No. 283 is dated Sept. 3, 1912. He was seconded to the Royal Flying Corps in November, 1912. In August, 1914, he went to France with No. 4 Squadron, R.F.C., and he was appointed Flight Commander with the temporary rank of Captain in January, 1915. After a short period of home service he returned to France in August, 1915, and in January, 1916, he was appointed to command No. 8 Squadron, R.F.C., and made temporary Major while so employed. Under his command No. 8 Squadron, equipped with B.E.2cs, took a distinguished part in the battles of the Somme. On Jan. 14, 1916, the *London Gazette* announced the award to him of the Military Cross for distinguished service in the Field. In July, 1916, he was promoted Captain, R.A., and in August, 1916, he was appointed to command the 13th Wing with the temporary rank of Lieut.-Colonel. During 1916 he was awarded the Russian Order of St. Stanislaus (3rd class with swords) for distinguished service during the course of the campaign. He served at home during part of 1917, but returned to France at the end of the year. In 1918 he was awarded the United States Distinguished Service Medal for valuable services in connection with the War.

On the formation of the R.A.F. he was appointed Lieut.-Colonel and in August, 1919, he resigned his Army commission on appointment to a permanent commission in the R.A.F. with the rank of Wing Commander. In January, 1919, he was appointed Commandant of the Central Flying School and in August, 1919, he was posted to Netheravon to command. In November, 1922, he was appointed to command the R.A.F. Training Base, Leuchars. He was promoted Group Captain in January, 1923, and was appointed Chief Staff Officer at Coastal Area in November, 1925.

Group Captain Bigsworth.

Group Captain A. W. Bigsworth, C.M.G., D.S.O., A.F.C., whose appointment to Headquarters, Coastal Area as Chief Staff Officer, is dated Nov. 11, was born at Croydon in 1885

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and educated by a private tutor. He entered the Royal Naval Reserve as a Midshipman in 1903 and was made Acting Sub-Lieutenant in 1909 and Acting Lieutenant in 1911. He learned to fly on a Bristol biplane on Salisbury Plain and his Royal Aero Club certificate No. 396 is dated Jan. 21, 1913.

In April, 1913, he was placed on the Supplementary List, Royal Navy, and appointed Flying Officer, Royal Naval Air Service. In July, 1914, he was appointed Flight Commander and in September, 1914, he went overseas with the R.N.A.S. In March, 1915, he was specially commended for good work, notably for an attack on German troops massing, and for locating a heavy gun at Leffinghe. He was promoted Squadron Commander in May, 1915, and during the same month took a distinguished part in an attack by aeroplanes from Dunkirk, on a Zeppelin patrol. From an Avro machine he dropped 4 twenty-pound bombs onto L.Z.39 from 10,000 ft., over Ostend. The L.Z.39 got back to her shed at Evere severely damaged and with one of her crew dead and several wounded.

He was made a Companion of the Distinguished Service Order in September, 1915. The *London Gazette* of September 13, 1915, states :—

> For services in destroying single-handed a German submarine on 26.8.15 by bombs dropped from an aeroplane. He was under heavy fire from shore batteries and from the submarine while manœuvring for position. With great coolness, however, he descended to 500 ft. and was subsequently able to get a good line for dropping bombs with full effect.

The War in the Air Vol. II describing this action states that he was flying a Henry Farman to bomb Zeebrugge and surprised a submarine on the surface about six miles northwest of Ostend. Two of his 65-lb. bombs appeared to make direct hits.

In December, 1916, he was appointed Wing Commander, R.N.A.S., and posted to a command in Home Waters. In October, 1917, he was awarded a Bar to the D.S.O. for services on patrol duties and submarine searching in Home Waters.

On the formation of the R.A.F. he was appointed Lieutenant-Colonel. In June, 1918, he was mentioned in Despatches. He was made a Companion of the Order of St. Michael and St. George in January, 1919, in recognition of distinguished services during the War. In May, 1919, he was given the acting rank of Colonel while in command of a Group. In the King's Birthday Honours of 1919 he was awarded the Air Force Cross in recognition of distinguished services rendered during the War. In August, 1919, his name was removed from the Navy List on appointment to a permanent commission in the R.A.F. with the rank of Wing Commander.

In September, 1919, he was posted to Malta and in July, 1920, he took over the command of the Armament and Gunnery School, Eastchurch. He was promoted Group Captain in January, 1923, and in March, 1923, he was appointed to command the R.A.F. in the Mediterranean. He was restored to the Home Establishment in August, 1925, and posted to the R.A.F. Training Base, Leuchars, to command.

The Nomenclature of Service Aircraft.

A new system of giving type names to Service aircraft has been adopted by the Air Ministry and will be effective in future.

Under this scheme the different types of aircraft will be named by the Air Ministry as and when they are adopted for Service use. Letters of the alphabet have been allotted by the Air Ministry and types will be named according to those letters. The first type to be so christened is the Handley Page Clive, the letter "C" having been adopted for the troop-carrier class. [This machine appears on the frontispiece this week.—Ed.]

Until they are adopted for Service use machines will be known by a number. Names beginning with letters of the alphabet not in use for Air Ministry types, will be used for civil and discarded types.

Army Officers and Aviation.

A special War Office Order which forms an additional paragraph to King's Regulations Paragraph 728 has been promulgated. The Order states :—

> Officers and other ranks, unless certified as being physically unfit for flying, may be ordered, as part of their military duty, to go up in the air by day when such flight is considered by superior authority to be necessary for some military purpose or training.
>
> Officers commanding units will take every advantage of the neighbourhood of a unit of the Royal Air Force to accustom their officers to carry out reconnaissances in the air.

The Order does not state whether, in the event of aircraft, carrying Army personnel, being obliged to continue operations after nightfall they should land at dusk to deplane the Army personnel or whether the Army personnel should be launched over the side in parachutes at the approach of night.

An Air Regatta.

The rumour that a display by the sea-going aircraft of the R.A.F. will be given during the Schneider Trophy Competition next summer, has not been confirmed by the Air Ministry. Such a display would undoubtedly add to the interest of the Schneider Competition and alleviate the periods of boredom which are a necessary part of these high-speed entertainments.

It has been pointed out that a display by Service seaplanes and flying-boats would interfere with the practice and other flights of the various competitors. But there does not seem to be any reason why a display by the R.A.F. should not be given during the mooring-out tests of the racing machines. The public have had no previous opportunity of seeing anything of the nature of an air-and-water Pageant by the R.A.F. and it should be extremely popular.

Explosives in Service Aircraft.

An Air Ministry Order states that it has recently been brought to notice that explosive and pyrotechnic stores have been carried in aircraft, although they have not been approved either for the Service or for use in the conduct of authorised experimental trials. While it is not desired to discourage the exercise of initiative, it should be clearly understood that no such stores may be carried in aircraft without express and prior permission from the Air Ministry.

SPORT IN THE R.A.F.

December Sports Fixtures.

Association Football : Dec. 1, R.A.F. Officers XI v. R.A.F. Cadet College, Cranwell, at Cranwell. Dec. 5, R.A.F. v. Oxford University, at Halton. Dec. 8, R.A.F. Officers XI v. R.N. and R.M. Officers, at Uxbridge. Dec. 22, R.A.F. v. Corinthians, at Uxbridge.

Boxing :—Dec. 7, R.A.F. Composite Team v. Civil Service Boxing Club, at Uxbridge. Dec. 14, R.A.F. Officers v. Belsize Boxing Club, at the Stadium Club.

Rugby Football :—Dec. 17, R.A.F. Final Trial at Uxbridge.

Squash Racquets :—Dec. 17 and 18, R.A.F. Championship, at Queen's Club.

Association Football.

The draw for the second round of the R.A.F. Football Association Challenge Cup is as follows :—

> Henlow v. Eastchurch; Kenley v. North Weald; Halton v. Uxbridge; Flowerdown v. Calshot; Worthydown v. Gosport; Shrewsbury v. Digby; Felixstowe or Martlesham v. Grantham. Bye, Netheravon.

The matches are to be played on Dec. 12 on the ground of the first-named station in each instance.

Squadron Leader Hinkler's Lecture.

The Royal Aeronautical Society announce that it has been found necessary to postpone Dr. Thurston's lecture. Sq. Ldr. H. J. L. Hinkler, A.F.C., D.S.M., R.A.A.F., has most kindly agreed to put forward the date of the lecture he is preparing, and will read a paper on the technical aspects of his record flight in a light aeroplane to Australia.

Sq. Ldr. Hinkler's lecture will take place at 6.30 p.m. on Thursday, Dec. 6, at the Royal Society of Arts, 18, John Street, Adelphi, W.C.2, and will be fully illustrated by a film.

VERY RARE.

The German Air Force in the Great War.

NEUMANN.

(Translation by J. E. Gurdon.)

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FLOWN AND KNOWN ALL OVER THE WORL

THE WAKEFIELD—HINKLER DINNER.

Some 330 people were the guests of Sir Charles Cheers Wakefield at the Savoy on Wednesday, Nov. 28, to meet Squadron Leader H. J. L. Hinkler, A.F.C., D.S.M., R.A.A.F.

When partaking of feasts at the Savoy one always feels that one is doing other people out of their just dues. The lad who brings his lass to dance on the famous spring floor at the Savoy must feel very much annoyed at having to dance on portable parquet upstairs while the coveted floor is occupied by hundreds of well-fed people who are doing still more feeding. Really the Savoy Hotel people ought to build a proper banqueting-hall big enough to accommodate Sir Charles Wakefield's ever-increasing host of friends.

Anyhow, Sir Charles Wakefield's friends certainly profit by the generosity of our modern Mæcenas.

SIR CHARLES WAKEFIELD, introducing Bert Hinkler (he must really be called by his popular title), said how gratified he was to offer him (Bert) this expression of admiration. One of the remarkable features of his flight was its extreme modesty—one might even say its stealth. He departed in silence and he returned equally unobtrusively. The British public had had no real opportunity of showing its appreciation of a truly grand achievement.

Our kinsmen in Australia rightly looked upon Sq. Ldr. Hinkler's fifteen-and-a-half-day flight as a national event and we prized his exploit just as sincerely in the Motherland. Sir Charles said that we here thought imperially and were even beginning to buy imperially. In a sense we had had a share in Sq. Ldr. Hinkler's achievement, for the machine which carried him was all-British in material, workmanship and design.

Sir Charles then presented to Mrs. Hinkler as a souvenir of the flight, a magnificent brooch showing a diamond kangaroo leaping round the globe.

Air Vice-Marshal Sir Sefton Brancker, starting to propose the toast of Bert Hinkler, made one of the few verbal slips one has ever heard him make in a speech, beginning "Sir Charles Wakefield, Ladies and Brancker," which brought shouts of laughter and put everybody into an even more good humour.

When the applause had gone down he said how glad he was that instead of talking about Imperial aviation and the benefits of air transport he had just got to talk about Bert Hinkler, who was quite one of the most popular figures in Civil Aviation. He said that Bert had created a record thirty-six years ago in putting Bundaberg on the map by being born there, and that since then Bert had never done a stroke of work,—except in connection with the air.

He (Bert) experimented with a towed glider in 1911. In 1912 he attached himself to an American aviator. [One Wizard Stone,—and incidentally this nickname antedates the R.A.F. use of the overworked word wizard.—C. G. G.]

Bert came to England in 1914 and joined the Sopwith firm. At the beginning of the War he enlisted as what the Navy curiously call a gun-layer and took part in anti-Zeppelin patrols on the North-East coast. [One of his most exciting adventures was with Flt. Sub-Lt. R. E. Nicholl, later Major R.A.F., now with the Ontario Provincial Air Service.—C. G. G.]

Then he served at Luxeuil, near Nancy, where he learned to fly with the first independent bombing force, commanded by Capt. Elder, R.N., and there he won the D.S.M. After that he went to Italy, and when his squadron was equipped with Camels, of which there were not enough to go round, Bert kept formation with the rest by super-tuning a Sopwith Pup.

After the War he got a Sopwith Dove, intending to fly to Australia but Ross and Keith Smith got there first. Then he got hold of an Avro Baby with a Green engine and started to fly to Australia. He set up a record by flying non-stop from London to Turin, but owing to engine trouble could get no further. Next year he was second in the Aerial Derby. Then he took his Baby Avro to Australia and put up another record by flying non-stop from Sydney to Bundaberg.

After returning, as the smallest pilot in England he flew the biggest machine, namely the Avro with a Napier Cub engine. At the Lympne Competition in 1923 he won the prize for the maximum mileage. In 1924 he won the Grosvenor Cup. In 1925 he was one of the Schneider Trophy team which went to the States without any luck. In 1926 he won at Lympne the prize given by the Society of Motor Manufacturers and Traders. In 1927 he put up another record by flying 1,200 miles from London to Riga non-stop and for that flight was awarded the Latvian Air Force decoration.

His great flight to Australia was a national event. In fact he (Sir Sefton) had heard that most of the 1928 vintage of Australian babies were being called after him. There was a legend that a Chinese admirer in Australia had also called his baby after Hinkler, and that on being told that Hinkler was not a Chinese name he had said that in Chinese it translated into Wun Long Hop.

Sir Sefton said that, speaking in modern air phraseology, Bert was a wizard of a pilot and never boobed anything. He was a perfect ground engineer and a perfect navigator and he was thorough and adventurous.

BERT HINKLER replying, said that he had done his best to preserve a calm demeanour under all the kind things that were said about him, but that there was a devil of a lot going on inside. He said that under such circumstances the proud victim of such remarks should be taken out while the barrage was proceeding and brought in when his turn to speak arrived.

He said that he went to Australia because he was going to see the old people and he thought it was a good use to make of a fair sample of British light aircraft. The part of the journey of which he felt most proud was the flight to Rome in a day, but that nearly caught him bending because he had to find his way to the aerodrome in the dark. He thought that under the present rule the aerodrome at Rome would be quite up-to-date, but his signals that he wanted to land brought no response till he was actually on the ground, and then the local officials sent up a flare which nearly set light to his machine.

Commenting on the long over-seas stretches, he said that one never thought how pretty the land looked, because it faded away too fast. And then one sat for hours looking at the water and making all sorts of resolutions never to lose sight of land again.

In the course of his long hops, the Sun "did it on him" twice and he had to land in the dark in the desert.

He paid a generous tribute to the goodness of the R.A.F. at all the stations at which he landed, referring especially to Karachi where the R.A.F. repaired and strengthened a leaking tank.

At Victoria Point, while he and a friendly planter were working on his machine in the open after dark by the light of an electric torch, there was a terrible row from the jungle near by, and the planter explained casually that this was only a couple of lions adjusting their family affairs. But, said Bert, the rest of the examination of the engine was rather hurried.

Between Singapore and Batavia he started counting the islands. He got as far as 543 and then he looked on his map and found that the archipelago was called "The Thousand Isles." And he added "I agree, there is every one of them."

When he was flying about Australia some controversy was roused by his arriving at certain places on Sundays. But at Perth somebody wrote to one of the local papers saying that at any rate by arriving there on Sunday he had done more than all the churches had done, because his expected arrival had kept the whole population looking towards Heaven for two hours.

In spite of the various landings, his Avian arrived in Australia still with the original air in its tyres, but while it was being wheeled through Melbourne to entertain the population one tyre punctured and let out the English air. Next day Melbourne was enveloped in a thick fog.

In conclusion he said that he regarded himself just as a representative English pilot hundreds of whom could flip to Australia just as well as he had.

SIR HARRY BRITTAIN, K.B.E., C.M.G., M.P., proposed the toast of the Commonwealth of Australia. After introducing an amount of extraneous matter he delivered himself, with the air of an epigrammatist, of the phrase "Aviation must play an ever-increasing part in the history of this great continent."

THE HONOURABLE SIR GEORGE FULLER, K.C.M.G., responded to the toast much in the manner of, and at much the same length as, the Prophet Isaiah, his matter being more or less analogous to the theme of the Vth Chapter. By the time he had finished, Major-General the Honourable Sir Newton J. Moore, K.C.M.G., V.D., M.P., who was to support the reply, had faded away, accompanied by all the other Members of Parliament among the guests,—the legislation of the country *must* proceed, in spite of the hospitality of Sir Charles Wakefield and the oratorical staying-power of his friends.

THE HONOURABLE SIR ARTHUR STANLEY, G.B.E., proposed "Aviation and the Empire" in a speech which unfortunately had to be postponed so as to give precedence to the professional Parliamentarians. Consequently we were only allowed to hear a little of a very delightful speech.

Sir Arthur first paid a deserved tribute to the memory of the late Frank Hedges Butler, and said how glad he was that Frank Butler had lived to see the day when his visions of twenty years before had been realised. He then described himself as a peg, a somewhat substantial peg, on which to hang the speeches of Colonel Sempill and Major Brearley, who would follow.

He said that Sq. Ldr. Hinkler's sensations when flying over

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big stretches of water reminded him of the late Lord Charles Beresford when he went down in the first submarine ever built in this country. The boat went down and sat on the bottom of the Solent, or somewhere, and to prevent it from sticking in the mud the crew had to keep rocking it from side to side. When at last it came up somebody asked Beresford what his sensations were while on the bottom. He said "The only thing I thought about was what a damned fool I was ever to go down."

Colonel the Master of Sempill said that as one of the pioneers of Motoring Sir Arthur Stanley was primarily responsible for the fact that to-day 5,000 new cars were being put onto the roads. He hoped that some day as many aeroplanes would be put into the air, and that they would take from the Exchequer their share of the tax on cars, because no roads had to be maintained for their benefit.

He pointed out that Australia in the forthcoming year would be spending an additional £200,000 on subsidising Aviation and that Australia would have by April next 8,000 miles of air line running regularly. There were only 7,000,000 people in Australia, and yet in this way they would be spending more money and running more miles of air line than existed to-day in the whole Empire. He paid a well-deserved compliment to Major Norman Brearley for the extraordinarily good work which had been done by West Australian Airways.

Major Norman Brearley, of West Australian Airways, said that what was being done in Western Australia was done by men like Hinkler. They were just a team of pilots carrying on their daily duties. He remarked that if people only knew they would be deeply touched by the gratitude shown by back-block settlers for the benefits brought to them by the air-line pilots in emergencies.

He said that the Australian Government was subsidising the air-lines on the condition that they used purely British equipment. This, he said, was all very well so long as the subsidies existed. But when the subsidies were withdrawn and the air-lines had to compete in the open market, British manufacturers of aircraft equipment had got to get down to producing a competitive article. The people operating aircraft in Australia wanted British goods and they would have them every time. But British manufacturers must remember that though Australia to-day was the happy hunting ground of British manufacturers it would also become the happy hunting ground for foreign competitors and that British manufacturers must produce what Australia wanted and must produce it at competitive prices.

Australia wanted to link up by air with England. Bert Hinkler and others had been through on the air line. Traffic for a through line was already in existence, both as regards individuals and the Governments concerned.

Next year they would be running a line from Perth to Adelaide which would cut two days off the time of the mails to the Eastern Australian cities. The mails coming from Perth amounted to 7 tons a week for less than 7,000,000 people, so there was every reason to believe that if the mails could be brought through from England by air in 15 or 18 days a big percentage of them would pay a surcharge big enough to pay for air transport.

If Australia had been a German colony there would have been an air-line through to Australia before this date. Australia had done its share in developing its internal air routes and it had proved that those routes were warranted up to the hilt. It was now up to the rest of the Empire to put through an Imperial airway.

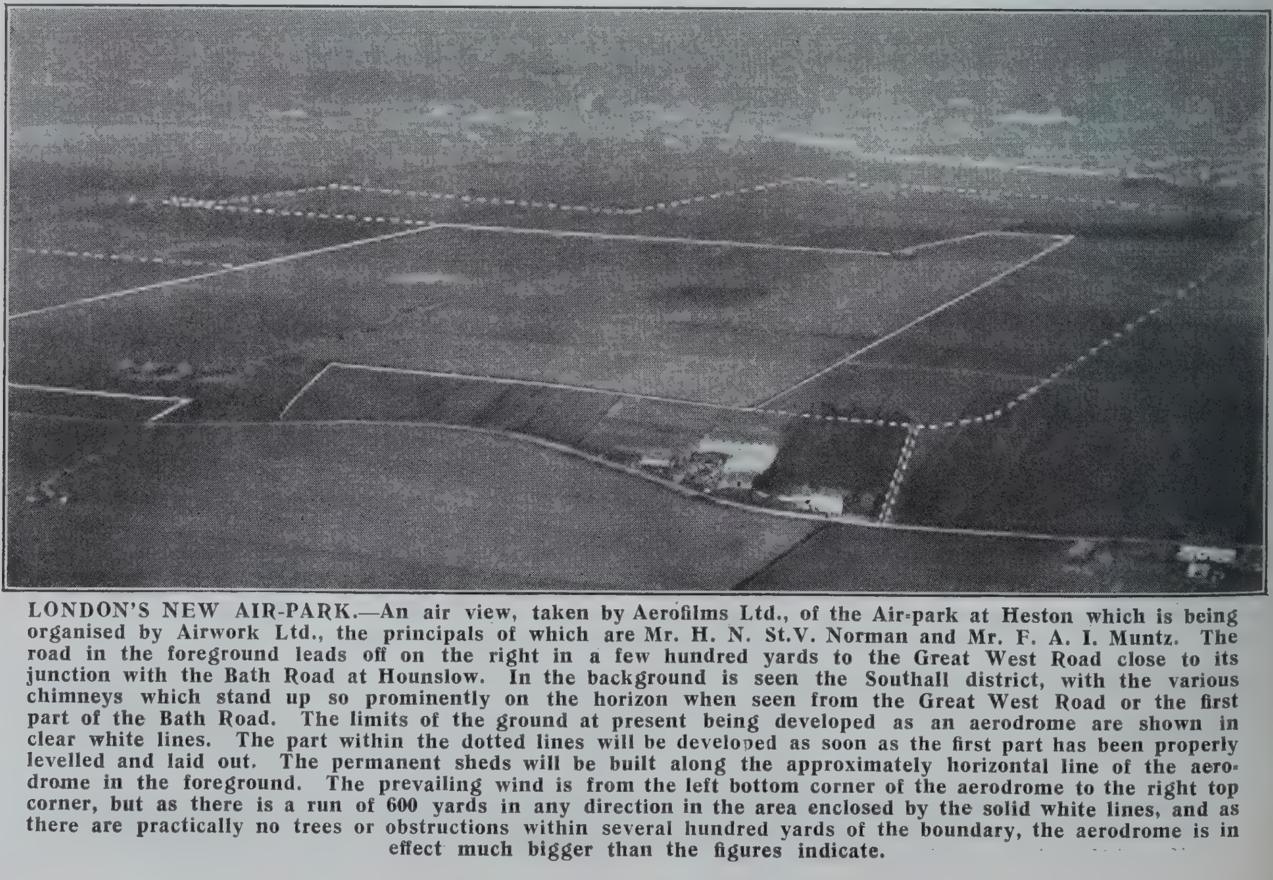
[This straight hitting from the shoulder in the best open honest Australian fashion produced prolonged applause. One can only hope that it will go right home not only to the British Government, from which people are always begging subsidies, but to the British manufacturers who at the finish have got to compete in the open market against intensely efficient American and German business men.—C. G. G.]

The Right Honourable Charles A. MacCurdy, K.C., proposed the health of the Chairman and Sir Charles replied in his usual sincerely touching terms.—C. G. G.

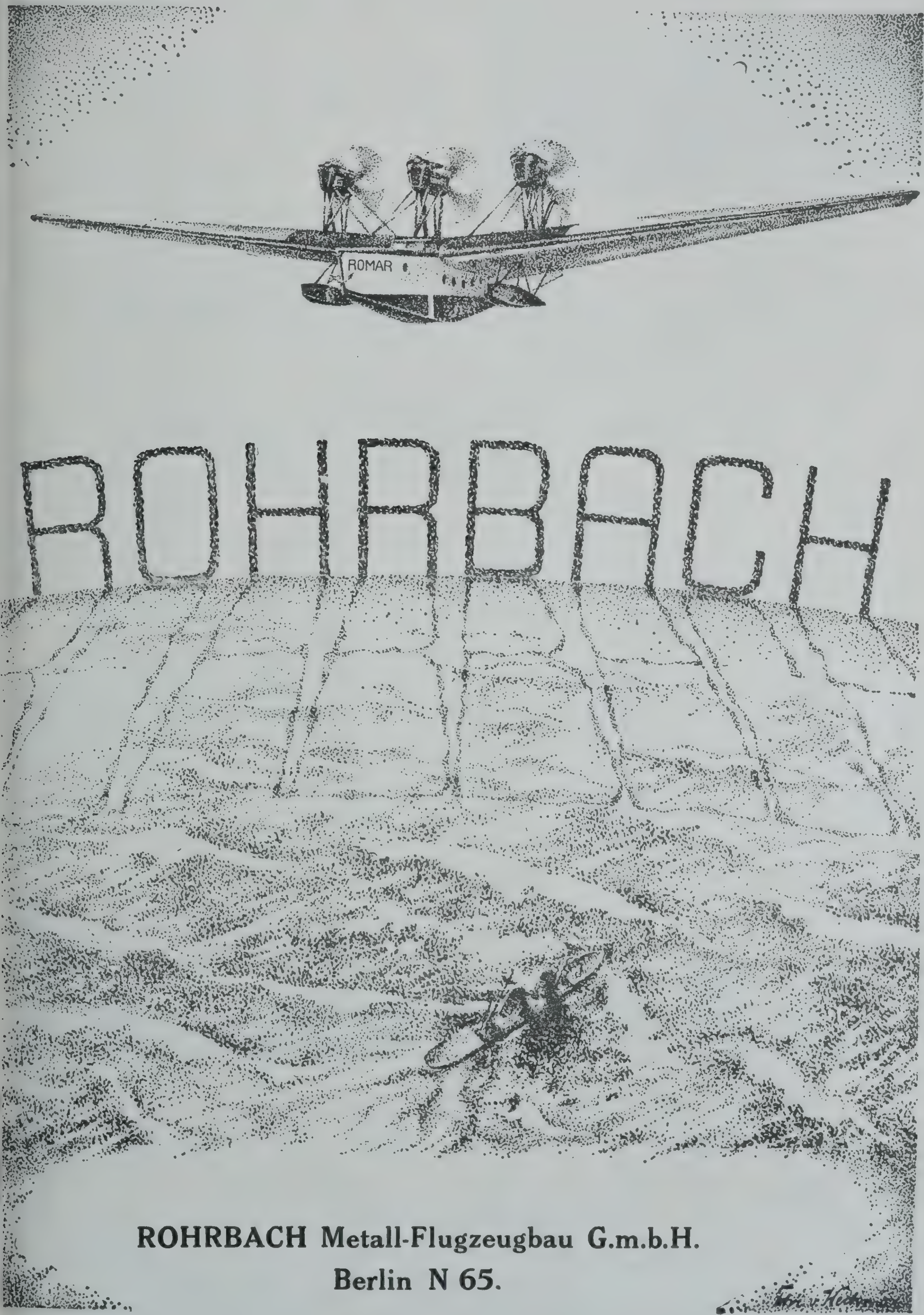
LONDON'S NEW AIR-PARK.

Some time ago the fact became fairly generally known that a large area of land close to the Great West Road had been acquired by Mr. H. N. St.V. Norman and Mr. F. A. I. Muntz. In due course there appeared among other news of new companies the registration of a firm known as Airwork Ltd., with Messrs. Norman and Muntz as directors.

This firm has taken over the development and operation of the land aforementioned. At the present moment it is being drained and levelled for use as an aerodrome and at one corner of it is a shed capable of holding three folded Moths, where the directors of the firm house their own machines. Very shortly work will begin on a number of sheds and a club-house on the South side of the aerodrome, adjoining the road which will connect them in a distance of a few hundred yards with the main West Road close to its junction with the Bath Road. The intention of the firm, as its name implies, is to do air work of all descriptions. Primarily it will operate an air-park where owners and operators of aeroplanes can keep their machines. For this purpose the aerodrome is excellently situated. It is a little over 8 miles from the centre of London, but most of that distance is on the new Great West Road, and the rest of it is along one of the easiest outlets from London, so that it is probably quicker to reach than any of the other aerodromes round London.



LONDON'S NEW AIR-PARK.—An air view, taken by Aerofilms Ltd., of the Air-park at Heston which is being organised by Airwork Ltd., the principals of which are Mr. H. N. St.V. Norman and Mr. F. A. I. Muntz. The road in the foreground leads off on the right in a few hundred yards to the Great West Road close to its junction with the Bath Road at Hounslow. In the background is seen the Southall district, with the various chimneys which stand up so prominently on the horizon when seen from the Great West Road or the first part of the Bath Road. The limits of the ground at present being developed as an aerodrome are shown in clear white lines. The part within the dotted lines will be developed as soon as the first part has been properly levelled and laid out. The permanent sheds will be built along the approximately horizontal line of the aerodrome in the foreground. The prevailing wind is from the left bottom corner of the aerodrome to the right top corner, but as there is a run of 600 yards in any direction in the area enclosed by the solid white lines, and as there are practically no trees or obstructions within several hundred yards of the boundary, the aerodrome is in effect much bigger than the figures indicate.



ROHRBACH Metall-Flugzeugbau G.m.b.H.
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AT THE HESTON AIR-PARK.—Here are seen Mr. Evans, operating a ground-hog, and Mr. Muntz of Airwork Ltd., with Mr. Norman's Moth in the background. The photograph gives some idea of the flatness of the ground. Mr. Evans is the younger son of the former holder of the area which is now being turned into an aerodrome, of which he and his father are both keen supporters.

The air-park will be properly equipped with workshops at which repairs of all sorts will be done to aeroplanes and engines.

The ground has been bought from the Ecclesiastical Commissioners. It was formerly farmed by Mr. Evans, whose house may be seen in a kind of bay in the aerodrome area, on the left of the accompanying picture. As this is his residence it and its immediate surroundings form a kind of Naboth's Vineyard in relation to the rest of the aerodrome. But fortunately in this case Naboth happens to be very friendly with those who have dispossessed him. He himself is keenly interested in the development of the air-park and one of his sons, who himself hopes to be one of the first pupils at the air-park, is working hard levelling the ground.

Airwork Ltd. hope to have the aerodrome itself in proper flying order by about March next, and every effort is being made to put up enough shed accommodation for a number of machines in connection with the Aero Show at Olympia in July.

The air-park is less than 8 miles from Olympia and obviously people who are thinking of buying machines which are in the Show will want trial runs on similar machines. For such work the Heston Air-Park is particularly handy.—C. G. G.

THE COBHAM FILM.

The 6,000-foot film prepared for exhibition from the 20,000 feet taken in the course of Sir Alan and Lady Cobham's flight in the Short Singapore round Africa on the Sir Charles Wakefield Tour is on view at the Marble Arch Pavilion this week. Anybody concerned with aviation who wants to see it is advised to do so during the next three days, as the film will not be generally released until well on into next year.

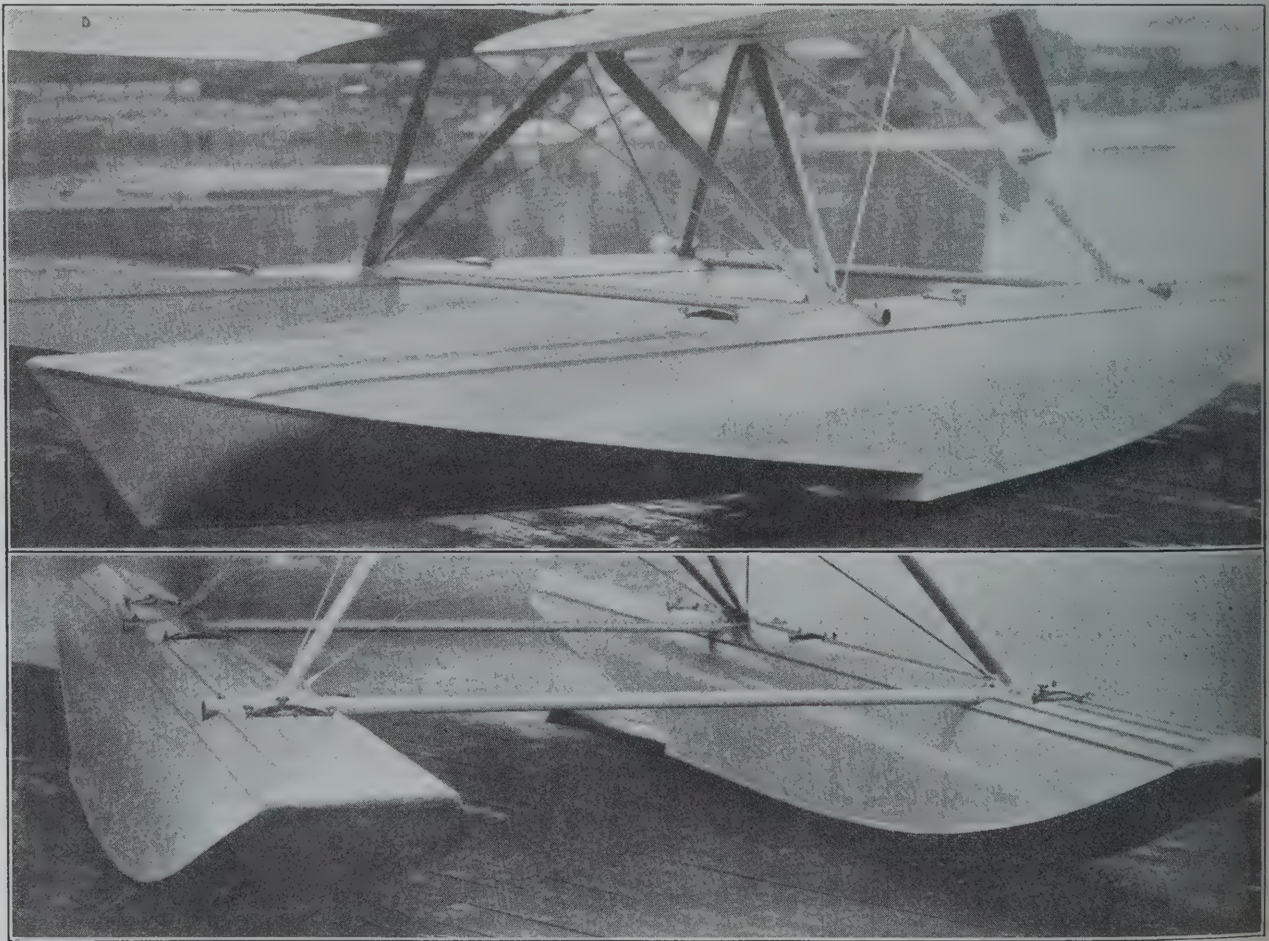
Unfortunately this week's exhibition of it was only fixed late last week and consequently there was no opportunity of giving due warning in The Aeroplane, but it is such a good film that one strongly recommends all readers of this paper who happen to be in London to go and see it. Not only are the actual flying pictures very interesting but those who are interested in commercial aviation in Africa and in the technical aspects of operating flying-boats as commercial propositions will find many points of particular interest in the picture.—C. G. G.

FINNISH FLOATS FOR MOTHS.

The photographs here reproduced show the floats of a Moth seaplane built under licence by the Finnish Government's Aircraft Factory at Helsingfors. The floats fitted to this machine unlike those used for British-built Moths are of three-ply instead of duralumin. This three-ply is specially treated to prevent soakage, and the first pair after 100 hours of flying were found not to have increased in weight.

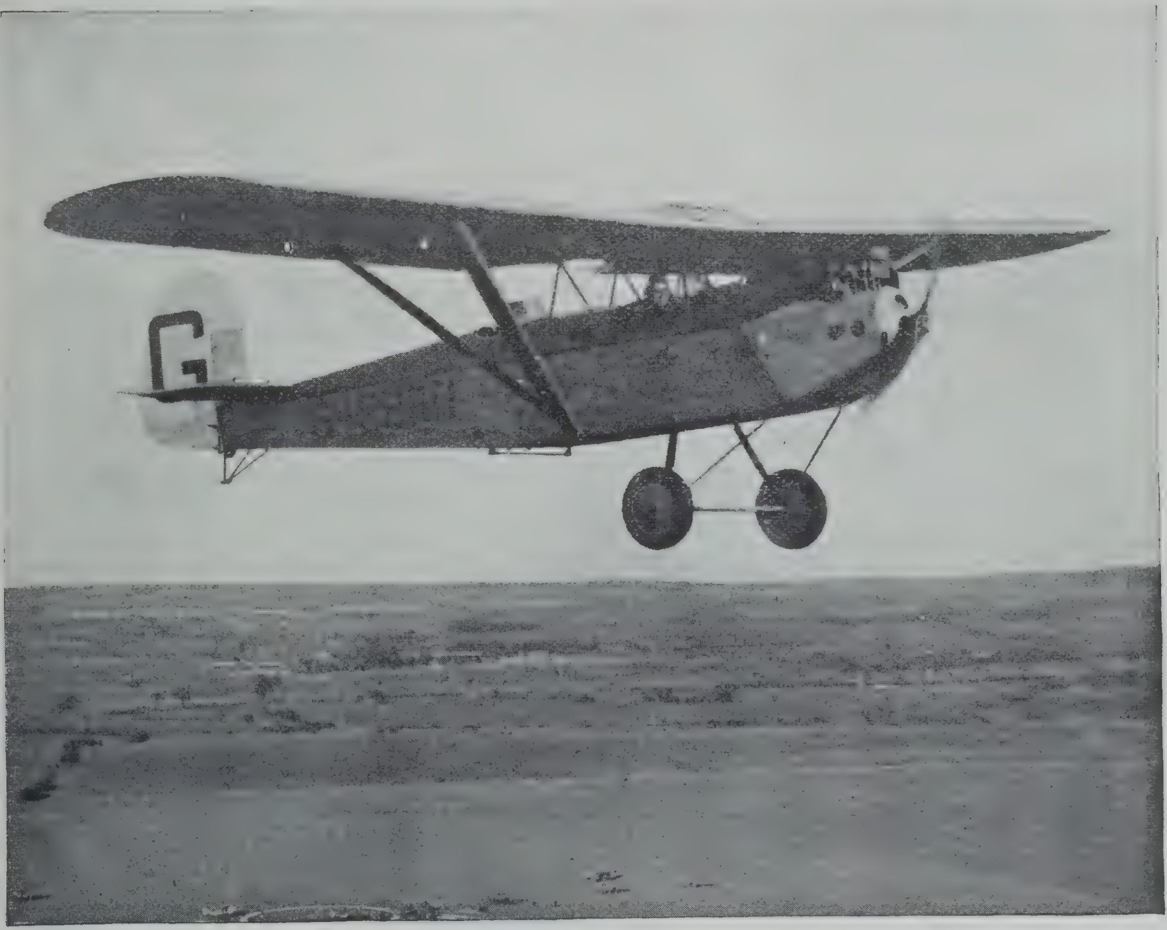
As a result of this experience the factory has been ordered to make 100 pairs of similar floats. The three-ply float weighs slightly more than the standard duralumin type (40 kg. = 88 lbs. each as against 36 kg. = 79 lbs. each) but can it is said be built for less than half the cost of the metal type,—at any rate in Finland where labour and timber are cheap.

As the photographs show the floats have a curiously shaped tail, but are otherwise normal.



FINNISH FLOATS FOR MOTHS.—A set of wooden floats for the D.H. Moth made at the Finnish Government Aircraft Factory at Helsingfors.

The
WESTLAND WIDGEON



(" Aeroplane " photograph.)

An ideal light 'plane for the private owner, club use, etc. Robustly constructed to exceedingly high standards. An excellent machine which will be appreciated by the most experienced as well as the new pilot. Possesses exceptional controllability, even when in stalled flight. Folding wings—no rigging to require adjustment; excellent view for pilot and passenger. Low running costs. With Cirrus III or Genet Engines.

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THE ENGLAND—INDIA SERVICE.

In the House of Commons on Nov. 28, in reply to Mr. Malone, the Secretary of State for Air said that agreement between Imperial Airways and the Persian Government with regard to the establishment of bases in Persian territory had been reached. The letters in which the agreement was recorded were to be signed that week in Persia. The publication of the terms of the agreement would be considered in due course. The settlement of the questions which had been outstanding with the Persian Government had made it unnecessary at the present time to seek for any alternative route for the Imperial Airways service to India.

MR. HINKLER'S AIRSCREW.

The following letter has been sent by Mr. Bert Hinkler to the Fairey Aviation Co. Ltd. :—

Dear Sirs,— I have despatched to you by passenger train the metal airscrew which was used on my record flight from England to Australia.

This has been returned for your inspection and I shall be glad to have your report on its condition. The test should prove of mutual interest, particularly as the airscrew has been exposed to extreme variations of climate, from flying through heavy tropical rains and very dry heat of the desert, to snowstorms. On other occasions when taking off under bush surroundings the blades have mowed a track through the tall grass and brushwood.

Although the airscrew was one of the items about which I had no doubt whatever and at the conclusion of my tour of Australia with a total of over 35,000 miles, was running as smoothly as on the day I set out from England, I should welcome your expert examination and report.

Congratulating you on an excellent production,

Yours faithfully,

Nov. 30, 1928. (Signed) B. Hinkler.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec. : Harold E. Perrin, 3, Clifford Street, London, W.1.]

Aerodrome : Stag Lane Aerodrome, Edgware, Middlesex.

Report for week ending Dec. 2.

Instructors : V. H. Baker, M.C., A.F.C., F. R. Matthews. *Ground Engineer* : C. Humphreys. *Aircraft* : 2 (MP and XS).

Flying Time : 21 hr. 20 min.; *Instruction* : 14 (11 hr. 10 min.); *Soloists* : 11 (11 hr. 10 min.).

Notes.—First solo flights were made by D. T. Bennett and T. E. Rose Richards on Friday, Nov. 30.

Christmas Closing.—Members are notified that the Club will close down for the Christmas holidays on Sunday evening, Dec. 23, and re-open on Tuesday, Jan. 1.

Christmas Staff Fund.—The Christmas Fund for the Ground Staff has been opened. Individual subscriptions are limited to 10s.

Christmas Raffle.—Members are reminded that there are still a few more tickets available (10s. each) for the D.H. Moth. Applications should be made to the Pilot Instructors at Stag Lane or at 3, Clifford Street, W.1.

Club Premises.—The building of the new hangar for the Club machines has now been completed and we shall take possession during the week.

The erection of the Club rooms for the members is proceeding satisfactorily and they should be available before Christmas. The Club will be fully licensed and luncheons and teas will be served daily.

The Lancashire Aero Club.

[Sec. : F. W. Atherton, Avro Aerodrome, Woodford, Cheshire.]

Report for week ending Nov. 24.

Instructor : D. E. Hall. *Ground Engineers* : W. Bartram, J. Chapman. *Aircraft* : 3 (MQ, PH and XD).

Flying Time : 10 hr. 55 min.; *Instruction* : 9 (3 hr. 10 min.); *Soloists* : 14 (4 hr. 25 min.); *Passengers* : 3 (2 hr. 30 min.).

Notes.—New member, Russell.

Report for week ending Dec. 1.

Aircraft : 4 (XD, PH, QL and MQ).

Flying Time : 12 hr. 45 min.; *Instruction* : 6 (2 hr. 30 min.); *Soloists* : 14 (8 hr. 45 min.); *Passengers* : 2 (35 min.), *Tests* : 6 (55 min.).

The Yorkshire Aeroplane Club.

[Sec. : Lieut.-Col. J. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Dec. 1.

Instructor : G. R. Beck. *Ground Engineer* : R. Morris. *Aircraft* : 3 (TB, SV and RF).

Flying Time : 11 hr. 40 min.; *Instruction* : 5 (2 hr. 35 min.); *"A" Pilots* : 7 (8 hr. 55 min.); *Passengers* : 1 (10 min.).

Notes.—Mr. Beck is doing his Reserve Course at Brough this week, but is managing to carry on the Club work as well.

Col. Walker is progressing as favourably as can be expected.

The Midland Aero Club.

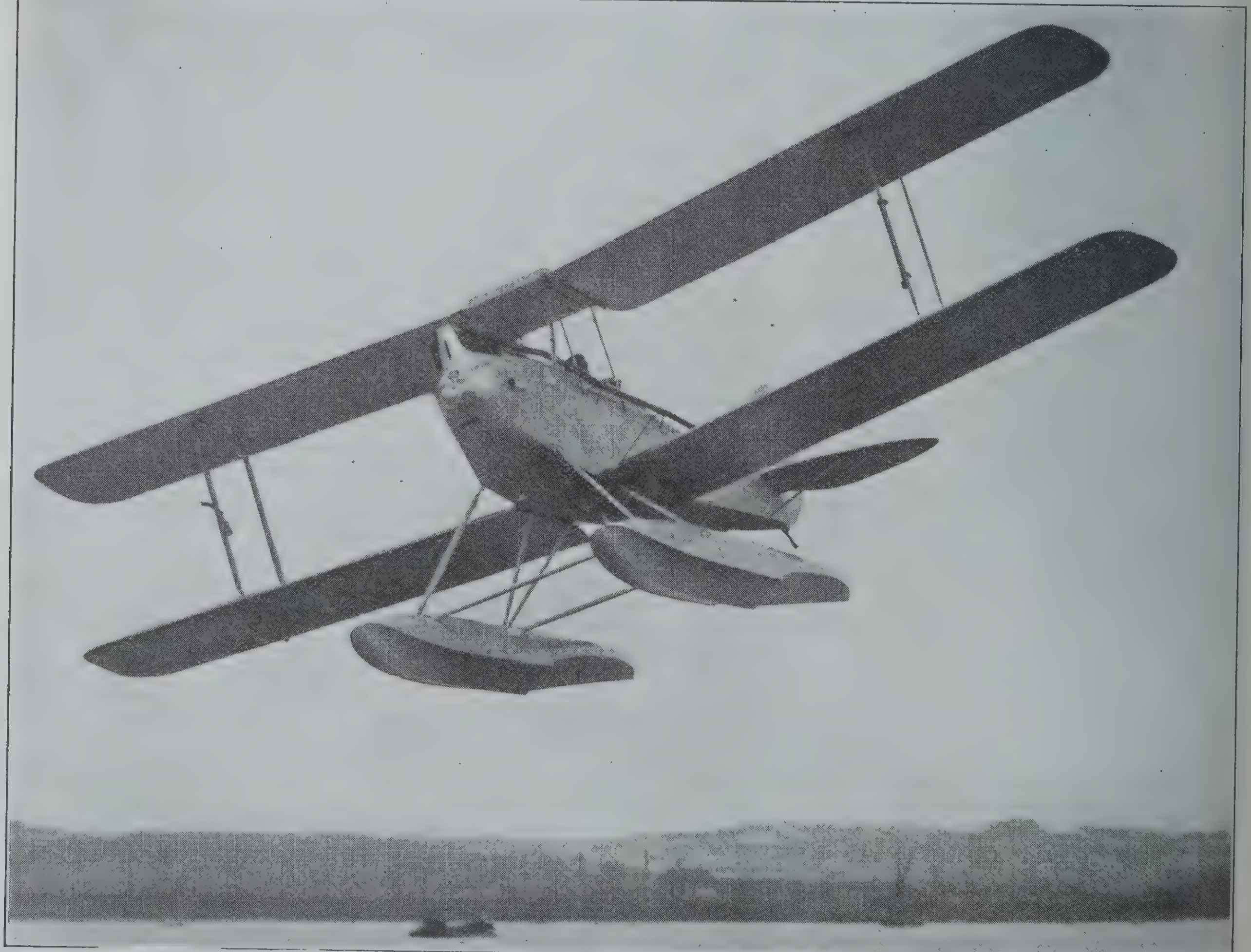
[Sec. : Gilbert Dennison, Villa Road, Handsworth.]

Aerodrome : Castle Bromwich, Birmingham.

Report for week ending Dec. 1.

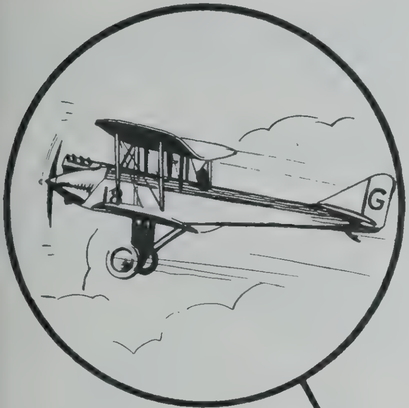
Instructors : Flt. Lt. T. Rose, D.F.C., and W. H. Sutcliffe. *Engineer* : W. J. Halland. *Asst. Engineer* : G. Rees. *Aircraft* : 3 (LT, LW and XT).

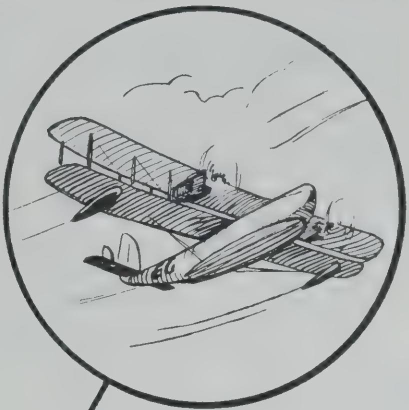
Flying Time : 13 hr. 35 min.; *Instruction* : 7 (8 hr. 10 min.); *Soloists* : 13 (2 hr. 30 min.); *Passengers* : 5 (2 hr. 30 min.); *Test* : 25 min.



FOR SARAWAK.—A. D.H. Gipsy-Moth seaplane fitted with Short metal floats being tested at Rochester by Mr. Hubert Broad. This machine is one of a batch ordered by the Sarawak Government for instructional purposes.

("Aeroplane" photograph.)





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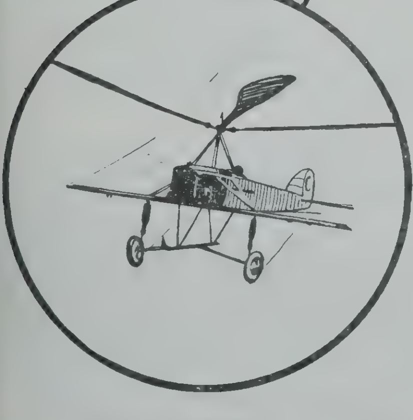

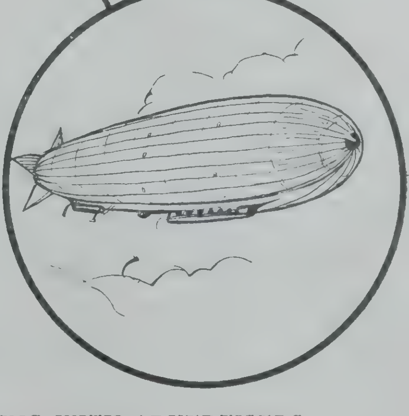

Notes.—One new member, Mr. C. Blakeway, commenced instruction during the week.

On Wednesday Flt. Lt. Rose flew LW to Stag Lane for renewal of the C. of A. This machine has now completed 1,000 hours' flying on school work without mishap.

The Norfolk and Norwich Aero Club.

[Sec.: G. McEwen, Mousehold Aerodrome, Norwich.]

Aerodrome: Mousehold Aerodrome, Sprowston, Norwich.

Report for week ending Dec. 1.

Instructor: B. Young. *Ground Engineer*: A. Kirkby. *Aircraft*: 2 (QX and ZW).

Flying Time: 3 hr.; *Instruction*: 4 (1 hr. 45 min.); *"A" Pilots*: 2 (1 hr. 15 min.).

Notes.—The incessant bad weather is making us all fireside aviators with a vengeance. It does nothing but rain and blow so that we are again reduced to a paltry three hours to our credit. We have no first solos and no "A" tests this week, although there are several just awaiting the weather for both these joys.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadleigh, Suffolk.]

Aerodrome: 2 miles E. from Hadleigh, Suffolk.

Report for week ending Dec. 1.

Instructor: G. E. Lowdell, A.F.M. *Ground Engineers*: "C," E. Mayhew; *"A"* G. Keeley. *Aircraft*: 3 (RE, SZ and UH).

Flying Time: 9 hr. 35 min.; *Instruction*: 4 (2 hr. 55 min.); *"A" Pilots*: 2 (5 hr. 20 min.); 1 trip was made on the *Ipswich—Cambridge Airway*: 1 trip (50 min.); *Tests*: 5 (30 min.).

Notes.—Mr. Garner, a new member, started dual instruction at Hadleigh during the week.

Mr. Schofield, an "A" Licence member, made two trips to Mousehold to visit our friends and neighbours, the Norfolk and Norwich Aero Club.

The weather has excelled itself and for sheer vileness beat last week to a frazzle, Club flying being possible only on Thursday and Saturday.

The Cambridge Aeroplane Club.—Although we had a machine at Conington on Monday, the weather rendered flying out of the question. Although fine on Thursday for a spell it was not considered fit to send a machine over to Cambridge.

The Ipswich—Cambridge Airway.—Only one trip was made during the week, a machine flying from Cambridge to Hadleigh on Monday morning. By special request passengers may book to Grantham on Mondays and Thursdays. The machine leaves Hadleigh at 10 a.m. to connect at Grantham with the Scotch Express which leaves King's Cross at 10.5 a.m. From many parts of Suffolk it is necessary to travel to London over night in order to catch this train. The alternative from Ipswich is a train leaving at 8 a.m. Thus the saving in time by air is anything from 16 to 20 hours. The fare from Hadleigh to Grantham is £4 4s., including Associate Membership of the Club for one year.

The Cinque Ports Flying Club.

[Hon. Sec.: R. Dallas Brett, 114, High Street, Hythe, Kent.]

Aerodrome: Lympne.

Report for week ending Dec. 1.

Instructor: H. G. Travers, D.S.C. *Ground Engineer*: R. H. Wynne. *Aircraft*: 2 (YJ and NN).

Flying Time: 9 hr. 25 min.; *Instruction*: 6 (9 hr. 15 min.); *Test*: 10 min.

Notes.—On Sunday, Nov. 25, no flying was possible owing to the strong gale.

Mr. Armstrong Payn, a new member from Deal, started instruction during the week, and put in 3 hr. 45 min. He is progressing very well.

The Scottish Flying Club.

[Sec.: George Baldwin, Moorpark Aerodrome, Renfrew.]

Report for week ending Dec. 1.

Instructor: R. M. Stirling. *Ground Engineer*: W. Calder. *Aircraft*: 2 (YG and TY).

Flying Time: 35 hr. 20 min.; *Instruction*: 15 hr. 15 min.; *Soloists*: 14 hr. 25 min.; *Joyrides and Tests*: 5 hr. 40 min.

Notes.—The general improvement in weather conditions this week is reflected in our increased flying hours. In view of the short days and the deplorable state of the landing ground, our total of 35 hr. 20 min. is really gratifying and speaks well for the general enthusiasm. Taking advantage of the bright spell, Mr. D. K. Fairweather and Mr. H. D. Primrose were launched on their first solo flights and both are to be congratulated on their excellent performances. On Thursday afternoon Mr. Fairweather provided us with quite a thrill by disappearing into a cloud bank on his third solo attempt, and failed to return for nearly two hours. The rumour that he had gone in search of his customary rainy day is reported to be quite untrue. The real explanation is that it took most of the time to decide exactly which lake was Moorpark Aerodrome.

In the course of the week, Mr. E. R. Robertson and Mr. Fairweather completed their "A" Licence tests in a most satisfactory manner. Both are *ab initio* pupils.

The end of this week also marks the end of our first complete year of existence. On the whole, it appears that it has been quite satisfactory but, until accounts are prepared and the general meeting held, our exact position cannot be stated. On Friday, Dec. 7, the Club holds the second of its season's dances in the "Plaza" Palais de Danse, Glasgow, at which it is expected there will be a good attendance. We ask that any members of other clubs who might be in Glasgow at that time, will accept this invitation and we assure them of a hearty welcome.

The Singapore Flying Club.

[Sec.: H. Chapman.]

Report for week ending Oct. 27.

Flying Time: 14 hr.; *Soloists*: 3 hr. 40 min.; *Instruction*: 4 hr. 40 min.; *Joy-rides*: 4 hr. 30 min.; *Tests*: 1 hr. 10 min.

Notes.—The small amount of flying time put in this week has been due to UJ still being out of commission and to the fact that a top overhaul of the engine of UK was due. This meant that there was no flying at all on Tuesday and Wednesday, but the latter machine was flying again on the morning of Oct. 25. The repairs to UJ are now almost complete and we hope to have both machines in the air by the end of next week.

On Oct. 21 Mr. L. W. Learmount (an old pilot) did his first solo after only 1 hr. 5 min. dual, putting in the necessary 3 hr. and completing his qualifying tests for "A" licence the same day.

Report for week ending Nov. 3.

Flying Time: 15 hr. 10 min.; *Instruction*: 7 hr. 50 min.; *Air Experience*: 7 hr.; *Tests*: 20 min.

Notes.—Flying time has been low this week owing to unfavourable weather on several afternoons.

UJ is now in action again, having been tested after re-assembly on Nov. 3. It is very gratifying to see both machines once more in the air together and we now hope to be able to launch several *ab initio* soloists before very long.

FLYING SCHOOLS.

The Brooklands School of Flying.

[Sec.: H. S. Hamilton, Brooklands Aerodrome, Byfleet.]

Report for week ending Nov. 25.

Instructor: Capt. H. D. Davis, A.F.C. *Ground Engineers*: W. A. Watts, W. H. Hellon. *Aircraft*: 2 (VE and WJ).

Flying Time: 2 hr. 50 min.; *Instruction*: 5; *Soloists*: 2; *"A" Pilots*: 2.

Notes.—Owing to the severe gales during the week there has been very little flying time.

Report for week ending Dec. 2.

Instructor: Capt. E. A. Jones. *Aircraft*: 2 (VE and WJ).

Flying Time: 6 hr. 15 min.; *Instruction*: 8 (3 hr. 40 min.); *Soloists*: 3 (1 hr.); *"A" Pilots*: 3 (1 hr. 35 min.).

Notes.—We welcome Messrs. W. L. Mummery, R. Beaton, and Capt. Ellison.

We regret to say that Capt. H. D. Davis is temporarily out of action through illness and has had to retire to a Nursing Home, but he is now showing great improvement.

We have been very lucky in securing the services of Capt. E. A. Jones, who is well known as a Free Lance Joy Riding Pilot, and who had the misfortune to have his machine blown to pieces during the gale a few days ago. This demonstrates the truth of that old saying that "It's an ill wind that blows nobody good." If this misadventure had not occurred we should not have secured his services.

The De Havilland Flying School.

Report for week ending Dec. 2:

Flying Time: 57 hr. 45 min.; *Instruction*: 13 hr. 15 min.; *Soloists*: 29 hr. 5 min.; *Other Flying*: 15 hr. 25 min.

Mr. L. Kashif, our second Egyptian pupil, accomplished a very successful first solo on the advanced type, D.H.9 Jaguar.

On Friday, one of our instructors took Sir Sefton Brancker to Cardington, in Capt. de Havilland's cosy Coupé Moth, for an inspection of the giant airship which is being constructed there.

Fifteen new Gipsy-Moths made their initial acquaintance with the "higher atmosphere," and were despatched along with the usual weekly quota for Canada and Australia.

Three Weeks to Christmas.

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Some Suggestions.

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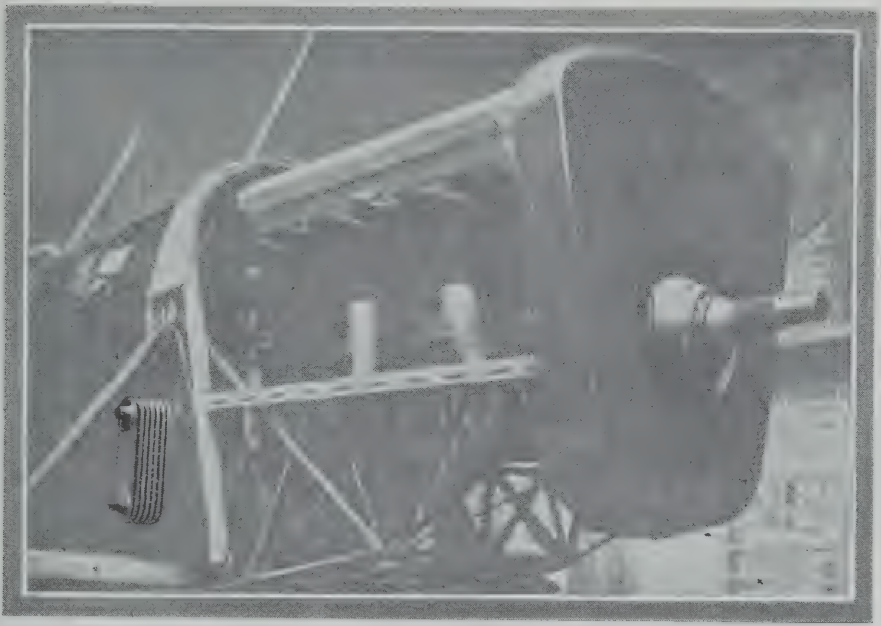

The illustration shows a Vickers-Potts Oil Cooler mounted on an "Asso" 1,000 h.p. Isotta Fraschini Aero Engine.

"Fabbrica Automobili Isotta Fraschini" of Milan write:

(TRANSLATION.)

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COMMERCIAL AERONAUTICS.

The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 2; Monday, 15; Tuesday, 16; Wednesday, 16; Thursday, 17; Friday, 8; Saturday, 11.

Imperial Airways Ltd. :
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 33, passengers 198, freight 11 tons.

Air Union :
Paris—London and return: Machines 17, passengers 41, freight 14 tons.

K.L.M. :
Amsterdam—Rotterdam—London and return: Machines 11, passengers 56, freight 5½ tons.

Sabena :
Brussels—London and return: Machines 9, passengers 10.

Deutsche Lufthansa A.G. :
Amsterdam—London and return: Machines 11, passengers 19, freight 1½ tons.

Miscellaneous :
British machines 3, passengers 1.
Foreign Machines 1, passengers 1.

Total number of trips by British Machines, 36, carrying 199 passengers. Foreign Machines, 49, carrying 127 passengers.

COMPARATIVE FIGURES.

Week ending Dec. 1 :
Machines, 85; Passengers, 326; Crews, 167; Total personnel, 493.
Corresponding week, 1927 :
Machines, 55; Passengers, 121; Crews, 94; Total personnel, 215.
Corresponding week, 1926 :
Machines, 69; Passengers, 140; Crews, 87; Total personnel, 227.
Corresponding week, 1925 :
Machines, 42; Passengers, 91; Crews, 53; Total personnel, 144.
Corresponding week, 1924 :
Machines, 69; Passengers, 168; Crews, 85; Total personnel, 253.
Corresponding week, 1923 :
Machines, 19; Passengers, 38; Crews, 27; Total personnel, 65.
Corresponding week, 1922 :
Machines, 60; Passengers, 130; Crews, 116; Total personnel, 246.
Corresponding week, 1921 :
Machines, 29; Passengers, 36; Crews, 49; Total personnel, 85.
Corresponding week, 1920 :
Machines, 22; Passengers, 33; Crews, 28; Total personnel, 61.

Croydon Notes.

Approaching Croydon by foot one grey and misty morning recently attention was attracted as far away as the corner of Purley Way and Stafford Road by a new vivid yellow wind-sleeve at the N.E. corner of the aerodrome. Compared with the time-honoured black and white type the new wind-sleeve stands out against a typical autumn sky in most striking fashion, and if the effect from the air is as marked as that from the ground the new colour will be a distinct improvement.

Apologies are due to the new Breguet machine, which was mentioned in these notes last week, but so far one has not been able to inspect. It is not of the 280T type, but a near relative, fitted with the 450 h.p. twelve-cylinder water-cooled Renault engine.

Some disappointment is felt at the aerodrome because the new pyrotechnic signal gun, mentioned in these notes during the Summer, has been taken away for further development in the hope of meeting R.A.F. requirements. In its original form it was a definite improvement on the existing mortars and bombs, but Croydon must now be content with these for this Winter.

To reduce the delays in signalling between the Control Tower and the operator of the mortars, these have now been installed just off the "tarmac" (which is actually concrete) right in front of the Hotel, where they will certainly shake the Hotel and any nervous visitors who may be imbibing nourishment therein at the time of their discharge.

Incidentally the Hotel has now provided a separate dining room for members of the Aeronautical Staff who desire to avail themselves of the specially reduced terms granted to them by the management. This is perhaps an improvement from the point of view of the staff, but it seems a little unwise from the Hotel's own point of view. It will completely cramp the style of the youthful sportsman who likes to bring his most recent young woman to Croydon for lunch and there point out one of Imperial Airway's fair clerical staff as "the famous lady pilot, Lady . . . . ," or even The Aeroplane's Croydon correspondent as the "well-known cross-Atlantic airman, Captain . . . . ."

The condition of Mr. Smith, of Surrey Flying Services, continues to improve, and he is now able to take solid food.

AIR MAILS TO SCANDINAVIA.

The Postmaster-General announces that, owing to the suspension of certain connecting air services abroad, the letter air mail services to Denmark, Sweden, and Norway, and the air parcel services to Denmark and Sweden have been suspended until further notice.

AIR MAIL TO COLOMBIA.

The Postmaster-General announces the abolition, as from last Saturday, of the minimum charge of 10s. per parcel on parcels intended for transmission by the Scadta air service in Colombia (South America). The new charge is at a flat rate of 4s. 6d. per lb.

Air parcels can now be accepted for all places in Colombia.

SOUTH AFRICAN AIR SERVICES.

Mr. John Keyser, a Johannesburg business man, representing a London banking corporation, is negotiating with the Union Government for the establishment of tri-weekly passenger, mail, and cargo air services between Johannesburg and Durban, and of similar fortnightly services between the Rand and other centres in the Union, Rhodesia, and South West Africa.

Mr. Keyser's principals are prepared to supply £100,000 for a company to be formed for this purpose. Within a fortnight of signing the contract, the company will operate a service from the Rhodesian border southward, thereby linking up with the Imperial Airways service from Cairo to Rhodesia. British machines will be used, and experts are now in England looking for the best type of aeroplane.

Mr. Keyser told the Government that its subsidy of £8,000 was inadequate, and negotiations are now proceeding on the basis of a subsidy of £15,000.

A SOUTH AMERICAN DISASTER.

On Dec. 3 a seaplane belonging to the Kondor Sydikat of Rio de Janeiro, which was going out to meet a liner on which Senhor Santos Dumont was returning to Brazil, fell into the sea off the Ilha das Cobras, and all the seventeen occupants were killed.

RAYNOIL MAPS.

Those pilots whose flying is confined to Western Europe can have little cause for complaint on the score of the accuracy or the adequacy of the maps which are available for their use, despite the fact that very few maps specially prepared for flying purposes are available.

In spite of this, entirely satisfactory maps for use in the air, even over the best mapped areas in the world, are not easily to be discovered. The excellent 4 miles to the inch Ordnance survey sheets of this country are too large to handle in a cockpit and must be dissected, and mounted either as a strip or in separate sheets to be of practical use. Even so they do not last long. Rain or oil will spot and stain them, they rapidly become ragged and dirty. If a course be marked on them with ink or pencil it cannot be erased without damaging the map.

All-Weather Motor Maps Ltd., of Lincoln House, High Holborn, London, W.C., now produce maps known as the "Raynoil" series which seem to meet the needs of the pilot admirably. The essential feature of their maps is that each sheet is coated, back and front, and sealed on all edges by a transparent material looking like celluloid, which is impermeable to water, oil or petrol and non-inflammable.

This coating gives to the map a card-like stiffness which prevents it from cockling, creasing, or flapping about in a wind. It is perfectly transparent, and it can be written upon with a grease pencil, the marks of which can at once be removed by wiping with a cloth.

Any map may be treated in this way, and further, it may be dissected into a series of sheets of any size convenient for the particular purpose for which it may be needed.

Maps treated by this process have been tested by the Air Ministry over a long period, and found so satisfactory that large contracts for flying maps have now been placed with All-Weather Maps Ltd. And Imperial Airways have adopted Raynoil maps as standard.

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The "Dornier-Super-Wal" illustrated above is fitted with 4 "Jupiter" engines built under license by the Gnome et Rhone Co., and several of the machines are in regular service over Mediterranean routes of the S.A. Navigazione Aerea. Early this year a "Dornier-Super Wal" broke the following 12 World's Records, using Wakefield CASTROL.

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Translation of letter from Dornier Metallbauten, G.m.b.H., dated 18/9/28.

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King's Cup used a special Raynoil map prepared for this event.

The company has now prepared for the use of pilots a special Raynoil map of England and Wales The basis of this map is the 4-mile per inch Ordnance survey. The country has been divided into areas, each area comprising a radius of approximately 100 miles from an important flying centre in such a way that these circular areas among them cover the routes between all at present existing aerodromes.

These maps are dissected into sheets of about 8 in. by 6 in., each provided with eyelet-holes, and are supplied, either in the form of a complete set for the whole country or of sets for particular areas in an oil and waterproof container, with a key map. For use, the invidual sheets needed for a given trip are selected, and are then joined together in the order in which they are required by metal rings, so that the user may readily turn from one to the next. The sheets not required are left in the container—either at home or in the aeroplane baggage locker. Courses may be marked on the face of the sheets, or notes on the back thereof with a special pencil and these can be erased without leaving any trace when no longer needed.

Specimen copies of this exceedingly useful map are in the hands of the chief instructors of all the English Flying Clubs, and all private pilots would do well to inspect one or another of these specimens before deciding upon what maps to acquire.

The activities of the All-Weather Map Co. are not confined to maps of Britain. They can supply Raynoil map sets for any area which has been mapped, and many long distance flights have already been made with the aid of these special sets.

The latest example of this special type of map was the set produced for use on Sir Philip Sassoon's recent tour to the East in a Blackburn Iris flying-boat. This set is contained in four separate books, each rather smaller in page dimensions than is The Aeroplane, and each about ¾ in. thick.

The production of this type of map, it may be mentioned, is due to the enterprise of Mr. S. B. Berry, managing director of All-Weather Maps Ltd., who is to be congratulated on having produced so useful a series of flying maps—incidentally at very reasonable prices—at a time when the demands for them is certain to increase rapidly.

NAPIER RELIABILITY.

It is interesting to note, as showing the remarkable reliability of the Napier aero-engine, that the "Lion" engines used by Imperial Airways on their Continental Services in 1925 were overhauled every 250 hours. In 1926 this had been increased to 300 hours and in September, 1927, the time between overhaul of engines was as much as 325 hours.

Many of the engines used by Imperial Airways exceed this period, one having run for 478 hours (47,800 miles) before being dismantled.

When one considers the strenuous work of these engines on the Continental Services, day in and day out, and realises they have all been in use for a number of years, the majority having 2,000 hours (200,000 miles) total flying to their credit and some well over 3,000 hours (300,000 miles), all will agree that the reliability and long life of the Napier "Lion" aero-engine has been proved beyond doubt.

MORTGAGES AND CHARGES.

London Aero Club Ltd.—Particulars filed of £4,000 debentures authorised Nov. 12, 1928, charged on the company's undertaking and property, present and future, including uncalled capital, the whole amount being now issued.

NEW COMPANY.

Dominion Aircraft Ltd.—Private co. Registered Nov. 26. Capital, £1,500 in £1 shares. Objects: to acquire the business of a civil aircraft pilot carried on by J. C. Don, and to carry on the same and the business of an aerodrome, and that of aeroplane manufacturers, repairers, carriers of passengers, dealers in spare parts, tools and accessories, petrol, benzol, or other motor spirit and oil, etc. The first directors (to number not less than 3 nor more than 20) are: J. C. Don, Hand and Sceptre Hotel, Southborough, Tunbridge Wells, civil aircraft pilot (managing director). F. S. Miles, Stafford Bungalow, Old Shoreham Road, Hove, civil aircraft pilot. Mrs. E. Don, Hand and Sceptre Hotel, Southborough, Tunbridge Wells. Qualification: £10. Solicitors: Bowles and Stevens, 3, Liverpool Gardens, Worthing. Registered office: 3, Liverpool Gardens, Worthing.

PERSONAL NOTICES.

Marriage.

LYWOOD—HORDERN.—On Nov. 28, at St. Mark's, North Audley Street, Mr. Geoffrey Edwyn Gifford Lywood, R.A.F., of the Malt House, Farringdon, Hants, son of Col. Gifford Lywood, to Miss Joan Edith Hordern, daughter of the Ven. Hugh Hordern, Archdeacon of Lewes, and Mrs. Hordern, of Baldwyns Park, East Grinstead.

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THE AEROPLANE—DEC. 12, 1928.

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INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

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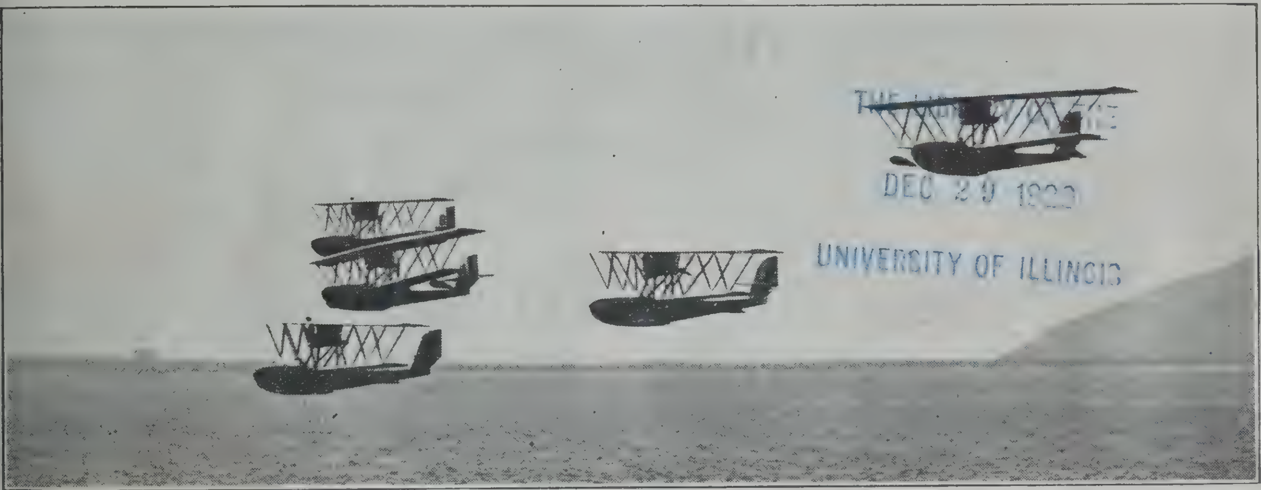
(Sir Harry Lauder.)



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DEC. 12,
1928.

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Aeronautical Engineering

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ON AIRCRAFT PRODUCTION AND ENGINEERING.

On Tuesday, Dec. 4, a party of some twenty-five guests, nost of whom were the Air Attachés of foreign nations, aid a visit to the Coventry Works operated by the Arm-trong Siddeley Development Co. Ltd., where they were eceived by Mr. J. D. Siddeley, Mr. C. D. Siddeley, Mr. E. I. Siddeley, Major F. M. Green (Chief Engineer), Mr. S. V. Hiscocks (Aircraft Design and Production), Mr. J. C. Briggs (Foreign Sales), Mr. W. Gordon McMinnies (Pub-icity) and Mr. B. W. Shilson (Home Sales).

The visitors included: Lieut. S. A. Casares (Argentina), ieut.-Col. H. Nerinck (Belgium), Sq. Ldr. A. Kubita Czechoslovakia), Mr. R. A. Mollerson (Esthonia), Lieut. de 'aisseau Sala (France), Capt. D. Papalexopoulo, C.M.G. Greece), Major S. A. Beldy (Hungary), General R. Ver-uzzio (Italy), Col. the Marquis Mayedo, C.V.O., M.C., ieut.-Col. J. Tozawa and Capt. K. Shiozawa (Japan), Mr. L. kis and Capt. Kandis (Latvia), Dr. A. Reyes-Guerra (Sal-ador), Major H. R. Harmon (U.S.A.), and Major A. R. oyle, O.B.E., M.C. (Air Ministry). The party was joined t Coventry by Major F. P. Scott of A. V. Roe and Co. Ltd., ho had with him Lieut.-Cdr. Falconakis (Greece) and Mr. . Burke Wilford, of Philadelphia.

The visitors were taken first to the Aircraft Works of Sir V. G. Armstrong Whitworth Aircraft Ltd. at Whitley, here they were shown the whole process of producing the ll-steel aircraft on which the firm specialises, notably the tlas and the Siskin. These machines, as many readers of HE AEROPLANE naturally know by now, are built entirely f strip steel, except where there are obvious advantages in sing steel tube, as for example in the under-carriage. he methods of rolling and otherwise manipulating the rip-steel into the special sections needed for the patented pars and other fittings of these machines was most inter-sting.

The process which seemed to excite the keenest interest as the electrical heat-treatment, in which a current is assed through a strip of steel held in tension on a kind of aw-bench.

The steel, already rolled to its special section, is brought up to a bright red heat for a precisely specified time and is then allowed to cool. Then a lighter current is put through it to temper it, after which it is allowed to grow cold while powerful tension by means of a weighted lever is put onto the end of it. This tension is found to pull out from the strip the almost imperceptible waves produced in the rolling process. Contrary to the general idea that heated metal expands and that cooling metal contracts the strip actually elongates in the process of cooling.

The various methods of rivetting up the strips to form corrugated tubular spars, and of rivetting up light channel steel for ribs and other fittings, were also very enlightening.

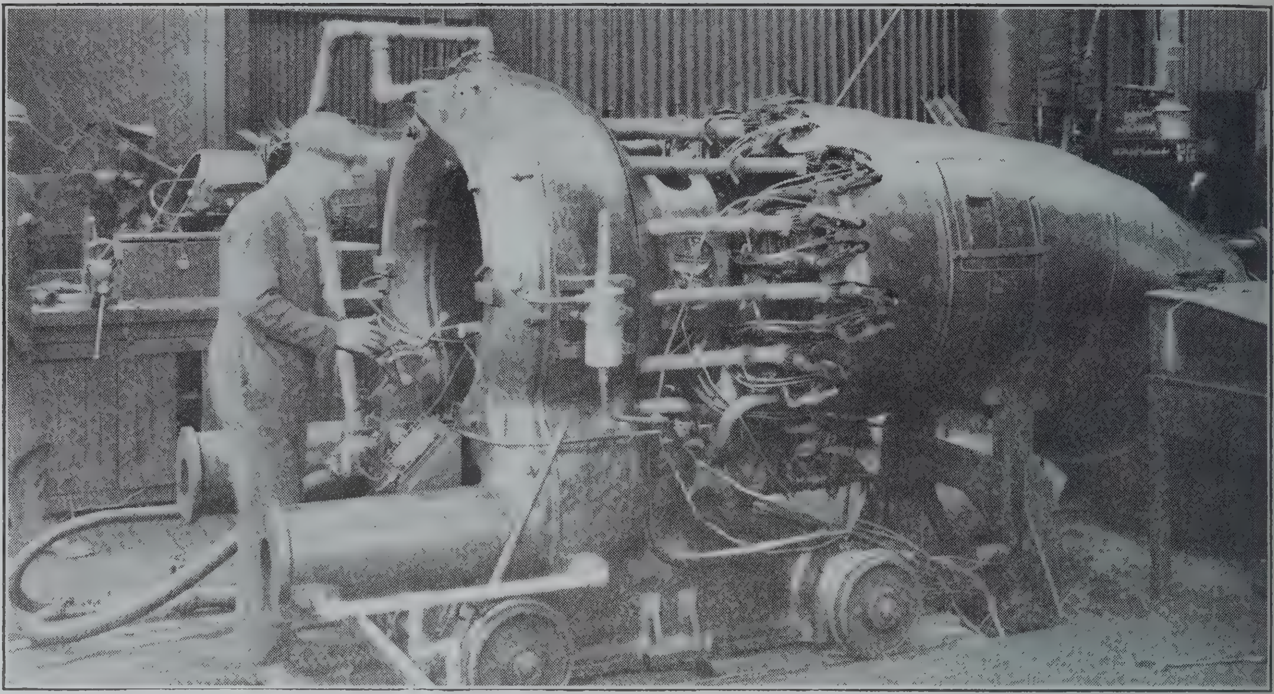
All these processes have in view one definite end, namely that with an adequate equipment of jigs and tools comparatively unskilled labour shall be able to turn out in quantities parts which are unquestionably accurate. When once the jigs and tools had been produced, they themselves can be re-duplicated in quantities, and so a factory which is properly equipped at the start can be turned onto mass production at short notice. And there is the certainty that the mass-production parts can be assembled without the need for skilled fitters.

APPLIED SCIENCE.

After seeing these various processes the visitors were taken to a beautifully designed and equipped wind-tunnel, in which for their special benefit there were arranged to balance one another a streamline, or fuseform, shape, like a tiny airship, with a cross-section about as big as a half-crown and a flat plate certainly no bigger in area than a shilling. When the current was turned on the drag of the tiny flat plate distinctly drove the big streamline shape forward.

This at any rate must have impressed on some of our visitors the benefit of wind-tunnel experiments, always provided that the air stream in the tunnel is adequate, either through speed or compression, to indicate the correct streamline shape for the speed of the machine for which it is intended.

AIRCRAFT ENGINEERING.—Making cylinders of Armstrong Siddeley aero-engines at the Park Side Works.



AIRCRAFT ENGINEERING.—Testing a Jaguar on the Dynamometer-bench at Park Side Works.

Thereafter we were taken to the Aerodrome, where unfortunately low mist, amounting almost to fog, was too bad for even such an able pilot as Mr. A. C. Campbell-Orde, the firm's instructor and test-pilot, to demonstrate the recent products, among which are several unarmed dual-control Siskins for advanced training. And very pretty jobs they are.

Quite one of the most interesting machines on view was a Siskin fitted with cowling totally encircling the cylinder-heads of the Jaguar engine. We learned that experiments along these lines have been in progress for about a year with very encouraging results,—so evidently our American friends are not the only people working towards reducing the head-resistance of air-cooled engines.

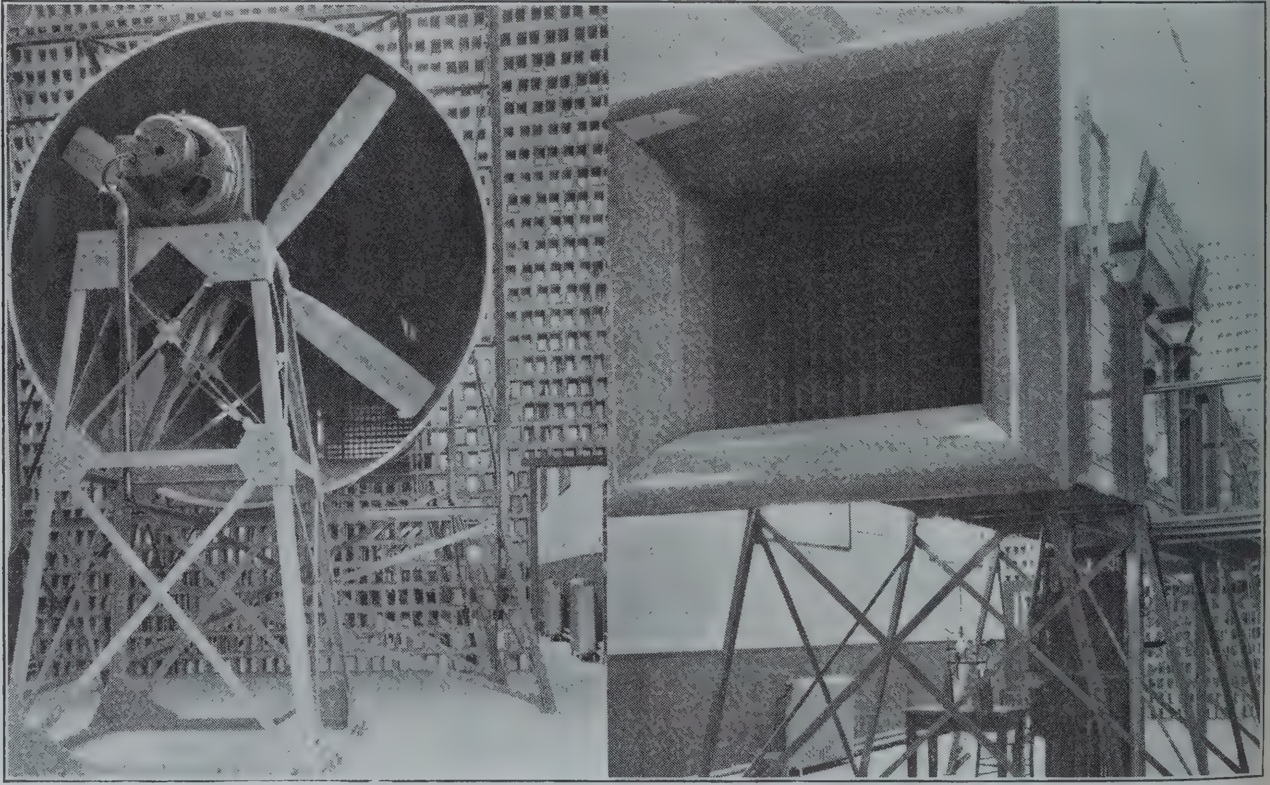
Mr. Siddeley's Policy.

From Whitley we were taken to the Park Side Works of Armstrong Siddeley Motors Ltd., where we were entertained at lunch by Mr. J. D. Siddeley, who, after lunch, said a few words on the general policy of his firms. He stated that their policy was rather to be engineering works on a large scale than simply an aeroplane factory. They believed that not only was steel the best material for aircraft but that as this is a steel-producing country it was the best material for us to use. And he remarked that thanks to the success of their type of steel-construction they had had the honour of instructing other firms in the Aircraft Industry in the use of their methods.

He referred to the increasing efficiency of air-cooled engines and said that the firm's latest product, the Leopard, had been introduced to the Air Ministry as a 600 h.p. engine, had been rated by them as 650 h.p., and was now giving 800 h.p.

The Engine Works.

After lunch we were taken to the engine-test sheds, where the whole range of Armstrong Siddeley aero-engines were seen, and very much heard, running on dynamometers. Naturally the Leopard attracted the most attention. We learned that this engine has already been tried out in the



AIRCRAFT ENGINEERING.—The experimental wind-tunnel at the Whitley Works. The outlet is on the left and the intake on the right.

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AIRCRAFT ENGINEERING.—Assembling all-steel wings at the Whitley Works.

air, fitted to a Hawker Horsley, and has given very good results.

It is a big 14-cylinder engine, the cylinders being 6 in. bore by 7½ in. stroke and the whole engine 57 in. across in frontal diameter. It certainly is a very impressive affair. On either side of it were arranged a Jaguar, a Mongoose, a Lynx and a Genet, all running beautifully.

From the test-sheds we were taken to the comparative quiet of the machine shops, where the various parts of the engines were being built. One of the interesting things seen there was the new master-connecting-rod of the Jaguar, all machined out of one piece instead of being built-up, as in the types hitherto used. It is a beautiful piece of machine work and obviously simpler than the older type. The new airscrew gears for the Jaguar also attracted particular attention.

Those of the visitors who were inclined towards engineering found heaps of interest in the high-grade machinery used in producing the parts of the engines, such as gear-grinders, to which Major Green referred as the secret of all good gears.

The engine assembly shop was uncommonly impressive. The output is now between 25 and 30 engines a week and though this quantity may seem small to motor-car people who think in thousands a day, it represents a very handsome turnover, and quite a big proportion of the total output of aero-engines. Incidentally, as the bigger aero-engin have so many cylinders, the rows upon rows of cylinde in the assembly shop certainly gave the impression of ma production.

Mass-production, which has to carry with it the accura of the finest individual manufacture, has to reach a ve high level of engineering skill. Altogether, both in t aircraft works and in the engine works all the visitors we obviously impressed by the way in which high gra engineering had succeeded in combining accuracy of mar facture with possibilities for mass-production.—C. G. G.

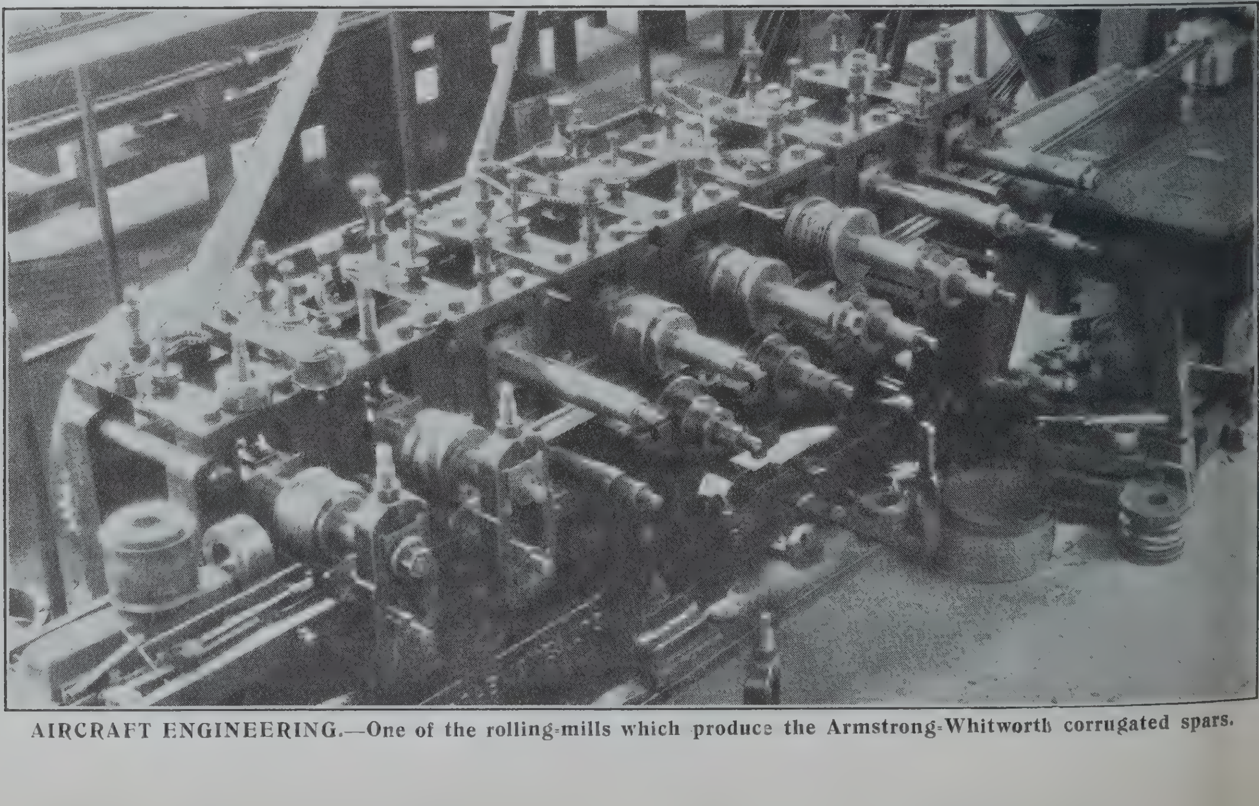
H.M. AIRSHIP R100.

In the House of Commons on Dec. 5 in reply to Mr. Hard the Secretary of State for Air said that good progress h been made with the construction of the R100 and the a ship was now about 85 per cent. completed. The last pa ment made by the Government was last March. The airsh would be completed early next year and ought to fly so time in the spring.

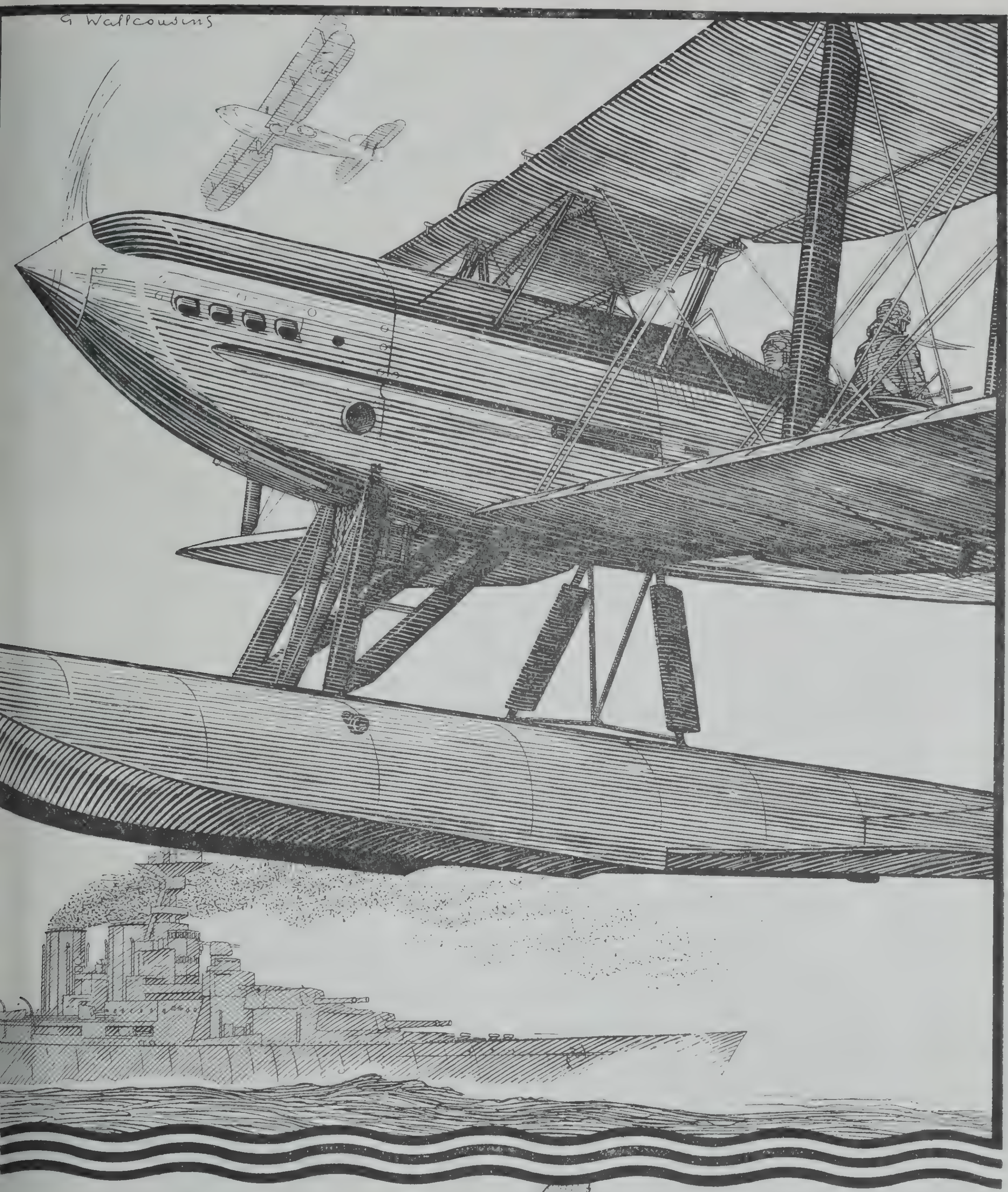
THE ROYAL AERO CLUB.

CHRISTMAS CLOSING.—The Club will be entirely closed fro 23.00 hrs. on Monday, Dec. 24, to 08.00 hrs. on Thursda Dec. 27.

The Club will also be closed on Saturday, Dec. 29, fro 15.00 hrs. to 24.00 hrs. on the occasion of the Club staf Christmas party.



AIRCRAFT ENGINEERING.—One of the rolling-mills which produce the Armstrong-Whitworth corrugated spars.



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THE VETERAN AIR NAVIGATORS.

A distinguished company composed of members of that unincorporated society known as the Veteran Aerial Navigators met at dinner on Dec. 5 at Rule's Restaurant, Maiden Lane. The Chairman was Sq. Ldr. E. L. Johnston, O.B.E., A.F.C., R.A.F.O., who is one of the assistants to the Director of Airship Development at Cardington. Sq. Ldr. Johnston is well known in the Service as the navigating officer of the old R.33, and he is to be navigating officer of the new airship when she appears.

The principal guest was Air Vice-Marshal Sir Sefton Brancker, K.B.E., A.F.C., and those present were:—Sir Graham Mackinnon, Messrs. Entwistle and Hay, of the Aviation Section of the Meteorological Office, Messrs. Tymms, Chattaway and Jeffs, of the Department of Civil Aviation, Mr. Hope, of Air Taxis Ltd., Messrs. Rogers, Robinson, Wilcockson, Youell, Horsey, Lawford, Walters, Olley and Jones, of Imperial Airways Ltd., Mr. Stack, of A.D.C. Aircraft Ltd., Messrs. R. F. Little, Birkett and Giblett, Flg. Off. Downer, and Lieut.-Commdr. Atherstone, and Major C. C. Turner and Mr. Colebrook.

The Chairman said that this group of Veteran Aerial Navigators had been gathered together to maintain and increase the high standard of efficiency created by those pilots who had pioneered British Civil Aviation, and its object was to put them on a professional basis similar to that of other long-established professional bodies and institutions.

Sir Sefton Brancker said that the Air Ministry did its best to help Civil Aviation, but they had to look to the pilots and operators of air-lines for the success of air transport. The high standard of our piloting together with the knowledge of air navigation now required under the new regulations would eventually make British Aviation supreme. The gathering that night might in the future become a body of professional air navigators setting a very high standard of proficiency and might occupy a position similar to that of one of the City livery companies.

Another speaker suggested that in these early days of flying the work of a scientific air navigator should rank with that of the aircraft designer, the research expert, and the engine designer, for air navigators were collecting highly valuable data. He argued that the day would never come when the navigator of an aeroplane could be compared to a locomotive driver or a taxi-man.

[Here one would suggest that though the air navigator of the long-range airship or the big air-line flying-boat of the future may be in fact a man of qualities equal to those of the navigating officer of an ocean-going liner of to-day, the fact remains that on a properly organised air-line with a chain of emergency landing grounds, a course deliberately chosen over easy country, adequate lighting at night, and a proper system of wireless directional beacons, an air-line pilot of an inherently-stable unstallable self-landing machine will certainly need no more education or intellect than a 'bus-driver. Therein lies the essential difference between the air-line pilot and the air navigator.—C. G. G.]

Mr. Lawrence Hope stated emphatically that greater international freedom of the air was needed. He said that recently he had arranged a contract to take a passenger to Bombay and then had to cancel it because he found that fifteen days were needed to get permission to fly in Turkey and that thirty-two days were needed to get similar permission to fly in Egypt.

[This seems to be a matter in which our Foreign Office might well concern itself. In the meantime, so far as Egypt is concerned, long distance aviators can always fly over it, as did Mr. Bert Hinkler.—C. G. G.]

A NOTE ON AIR NAVIGATORS.

The general situation as regards air navigators, veteran and otherwise, is excellently set forth in the following statement by one who is intimately concerned with them:—

For three years I have preached to our Civil Aviation pilots that unless they created some standard of technical efficiency in their profession, their status would be undermined as a result of the law of supply and demand, and that just as the pioneers in the industry had made sacrifices to attain our air supremacy, so we had a duty to maintain a standard in our profession worthy of being handed on to future generations of airmen.

When the Air Ministry introduced the regulations for Air Navigators it was never anticipated that those regulations would be anything else but a dead letter. How could you stop men like the late F. L. Barnard and Hinchliffe from flying if they did not present themselves for examination? It looked as though the certificates of competency would have to be given away and that the whole purpose of the regulations would be defeated.

It was a difficult proposition and you can see for yourself that if these men had been that way inclined they could have ignored the regulations and made the Air Ministry look ridiculous.

Happily our pilots were made of finer stuff,—they saw here an opportunity to establish their profession on good solid foundation. Men who had long forgotten their scholastic and academic qualifications set about to learn again the rules of arithmetic. Here was "Bill" Lawford struggling with logarithms, F. L. Barnard evolving trigonometrica ratios, Rogers and Olley working slide-rules, and Dudley Travers constructing Mercator Charts as a hobby.

Even the greatest sceptics, Hope of Air Taxis, Muir of the Surrey Flying Services, Stack of A.D.C. (only to mention a few) ceased to scoff.

What is the result? No operating company will consider applications for vacancies for pilots from men unless they have qualified as air navigators. The result is even reflected in the Insurance Rates.

Apart from that there is a much more significant feature to be realised. The original purpose of the regulations was to aim at creating a newcomer into the ranks of the Industry in the form of a Specialist Navigator,—on the assumption that the pilot could not attain the educational standard required for the navigator's certificate. The phenomenal effort on the part of our pilots confounded the prophets, and the whole of the I.C.A.N. regulations in respect of Air Navigators have had to be put up for revision to meet the new situation which has arisen.

Having achieved this remarkable result, and having made so much progress in the last three years it seems that our position should be consolidated. Many schemes more or less worthy have been afoot to create Leagues and Societies for aggrandisement and advertisement, but none with the object of raising the professional status of the Civil Pilot.

There is much to be done to attain the ideal, and the work cannot be done without united effort. The most urgent need is to make provision for the tuition of prospective candidates. At almost every constructor's aerodrome and light aeroplane club there are pilots and instructors who are most anxious to get their certificates of competency as navigators, but owing to the lack of facilities for tuition they can only grope in the dark.

The Air Ministry, mostly owing to the efforts of Colonel Edwards and Mr. Tymms, have given series of lectures during the last three years to prepare candidates for the examinations. But as a result of the attitude of the Treasury there is every likelihood of these lectures being discontinued. The Treasury disclaim the liability for incurring expense for the tuition of civilians.

The reason given is that the Board of Trade does not coach the sea-faring profession for Masters' and Mates' certificates of competency. Quite true—but being a sea-faring nation whose very life depends upon the Mercantile Marine,—noble-minded benefactors have endowed Marine Schools which are to be found at all the principal ports, which in addition to their endowments get an income from grants allowed by municipalities, the Education Board, and from other sources, so that candidates can get tuition in their sea-faring profession at purely nominal fees.

The Royal Air Force have their School of Navigation a Calshot where serving officers can get the best tuition at the public expense while getting a handsome salary in the process. When his time is expired an R.A.F. pilot can come into the civilian market, take his civil exams and compete with the civil pilot, who at the very best can get what little private tuition he can at considerable loss financially to himself.

Our civil pilots would be the last to complain of thi competition—in fact I only quote it as an argument agains the Treasury attitude of refusing assistance to the civil pilot

Having then, more or less found our feet and realising that we are at least united in one purpose, to maintain professional standard, we wish to find ways and means t attain the highest technical qualifications so that we can b justly proud of our profession.

EARLY BIRDS.

WASHINGTON, D.C.—The "Early Birds," an association o pioneer airmen, has been instituted by P. S. B. Morriss o New York and Ernest Jones of Washington and will hol its first annual meeting at Chicago, Dec. 3, during the ai show in that city.

More than 200 are estimated to be eligible for membership Among those who have already signified interest in th organisation are: Brig.-Gen. Benjamin D. Foulois, assistan chief of the Army Air Corps; Capt. George A. Gray, loca representative of Pioneer Instrument Co.; Maj. Ernest Jones of the Commerce Department; Maj. Thomas DeW. Milling Office Chief of Air Corps; Miss Marjorie Stinson, sister o Eddie; Capt. Holden C. Richardson, Materiel Division, Burea of Aeronautics; Comdr. John H. Towers, of the Navy; Clyd V. Cessna, Parker D. Cramer, Glenn H. Curtiss, Chas. H Day, Ivan R. Gates, B. R. J. Hassell, E. M. Laird, Earl Ovington, Augustus Post, B. Russell Shaw, Walter J. Shaffer and Igor Sikorsky.—*(From "Aviation," New York.)*

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CIVILIAN AIR ACCIDENTS.

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(Vide "Morning Post," 29-11-28.)

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THE ROYAL AIR FORCE.

The London Gazette.

December 4.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—Flg. Off. C. H. Tighe is restored to full pay from half pay (Dec. 1).

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—Flg. Off. E. D. Cummings, D.F.C., is transferred from Class A to Class C (Nov. 24); Flg. Off. D. H. B. Clark is transferred from Class AA to Class C (Dec. 5); Plt. Off. J. R. Wardrop is transferred from the Special Reserve to the Reserve, Class C (Oct. 24).

AUXILIARY AIR FORCE.

GENERAL DUTIES BRANCH.—No. 603 (CITY OF EDINBURGH) (BOMBING) SQUADRON.—The following to be Plt. Off.:—E. S. V. Burton (July 31). (Substituted for the notification in the *Gazette* of Sept. 11.)

Appointments.

Week ending December 10.

GENERAL DUTIES BRANCH.—Wing Commander A. A. Walser, M.C., D.F.C., to R.A.F. Depot, Uxbridge, 5/11.

Squadron Leaders A. J. Capel, D.S.O., D.F.C., to R.A.F. Depot, Uxbridge, 5/11. J. W. Woodhouse, D.S.O., M.C., to Armoured Car Wing, 'Iraq, 22/11.

Flight Lieutenants H. J. Collins, to No. 101 Sqdn., Bircham Newton, 9/1. R. B. Sutherland, D.F.C., to No. 14 Sqdn., Middle East, 11/11. G. S. Shaw, to No. 8 Sqdn., Aden Command, 1/12. F. G. A. Robinson, to No. 11 Sqdn., Netheravon, 25/11. E. H. D. Spence, to No. 441 Flight, 19/11. C. W. Busk, M.C., to R.A.F. Depot, Uxbridge, 5/11.

Flying Officers G. W. P. Irwin, to R.A.F. Depot, Uxbridge, 5/11. A. N. Francombe, to R.A.F. Depot, Uxbridge, 5/11. W. L. McLaren, to R.A.F. Depot, Uxbridge, 1/12. E. C. L. Richardson, to No. 10 Sqdn., Upper Heyford, 9/12. C. H. Tighe, to No. 13 Sqdn., Andover, 1/12. J. W. M. Nancarrow, to R.A.F. Station, Duxford, 7/12. V. C. Taylor, to No. 3 F.T.S., Grantham, 3/12. D. L. Thomson, to Aircraft Park, India, 1/11.

MEDICAL BRANCH.—Group Captain A. V. J. Richardson, O.B.E., M.B., D.P.H., to Aircraft Depot, India, 13/10.

Squadron Leader F. E. Johnson, to C.F.S., Wittering, 29/11.

Flight Lieutenants R. H. Stanbridge, to H.Q., Middle East, 15/11. G. P. O'Connell, M.B., to R.A.F. Officers' Hospital, Uxbridge, 1/12.

Flying Officers J. F. McGovern, M.B., to No. 84 Sqdn., 'Iraq, 8/11. S. B. S. Smith, to School of Army Co-operation, Old Sarum, 28/11.

STORES BRANCH.—Flying Officers A. A. Quayle, to R.A.F. Reception Depot, West Drayton, 12/11. E. F. Smith, to H.Q., A.D.G.B., Uxbridge, 3/12.

Pilot Officer J. E. Reynolds, to H.Q., A.D.G.B., Uxbridge, 30/11.

ACCOUNTANT BRANCH.—Flying Officer G. Goodall, to Station H.Q., Hinaidi, 21/11.

A Fatal Accident.

The Air Ministry regrets to announce that as the result of a collision in the air near Whittlesford between two Siskin machines of the Station Flight, Duxford, and No. 19 (Fighter) Squadron, on Dec. 10, 203773 F-S. Osmond Cecil Tostevin, the pilot and sole occupant of one of the aircraft, was killed. The pilot and sole occupant of the other machine (Flg. Off. E. G. Cayley) made a safe descent by parachute.

Two New Bombing Squadrons for the R.A.F.

Two new Squadrons will be formed before the end of the financial year (in March, 1929), to replace No. 11 (Bombing) Squadron and No. 39 (Bombing) Squadron which have been withdrawn from the Wessex Bombing Area for service in India. These two Squadrons are sailing for India at the end of this month.

The two new Squadrons will be designated No. 33 (Bombing) Squadron and No. 35 (Bombing) Squadron. Their equipment has not yet been announced.

The programme for the establishment of the R.A.F. by the end of the present financial year will be completed by its formation, in addition to the two replacement Squadrons, of two Flights for the Fleet Air Arm.

The Editor of THE AEROPLANE will be glad to hear from any officers or men who served with 33 or 35 squadrons any facts about or incidents in the War-time lives of those squadrons, so that they may be passed on to the personnel of the resurrected squadrons.

The Fleet Air Arm.

The Times of Dec. 11 states:—

The procedure for showing Naval and Royal Marine officers attached to the Royal Air Force in the Navy List has been modified. In the seniority lists there is shown in brackets after an officer's name his rank and seniority in the R.A.F., instead of the mere notification "Attached to R.A.F." The latter phrase has been transferred to the alphabetical list at the beginning of the volume. The change has taken effect in the December Navy List. It indicates clearly how an officer's seniority in the R.A.F. is determined by his flying courses, and is quite irrespective of his seniority in the Royal Navy. Only pilots are affected by this change, observers being shown as before by the symbol (O), and as "Lent to R.A.F."

A Display at Heliopolis.

A Display by R.A.F. Units in the Middle East Command will be given at Heliopolis Aerodrome, Cairo, on Feb. 7, 1929. All profits from the Display will be given to the R.A.F. Memorial Fund.

Specialist Posts.

An Air Ministry Order states that specialist officers will be known by the following descriptions:—Engineer, Signals, Armament, Photographic, Navigation. Similar descriptions will be applied to warrant officers performing similar duties, *i.e.*, S/M Engineer, S/M Signals, S/M Armaments, S/M Photographic, the descriptions of warrant officers employed on duties not falling within these categories remaining as at present, e.g., S/M Blacksmith. Promotion to or in warrant rank will in no way be affected by this change in nomenclature.

Establishments are being gradually amended accordingly, annotations being made in any case in which more detailed description of the qualifications required is necessary. The term "Technical" will therefore disappear from establishments and be replaced by "Engineer."

Accordingly the use of the term "Technical" in the narrow sense as applying to personnel employed in the maintenance of air-frames and engines should cease. It may still be applied in a general sense to officers, whether specialist or short-service officers, performing some technical function, and to airmen of Groups I, II and III.

The Directorate of Technical Development.

The post of Director of Technical Development to which Air Commodore F. V. Holt, C.M.G., D.S.O., has been appointed, will be temporarily held by Group Capt. the Hon. J. D. Boyle, C.B.E., D.S.O.

The Air Member for Personnel.

A farewell dinner to Air Vice-Marshal Sir Philip Game, K.C.B., D.S.O., *p.s.c.*, Air Member for Personnel, who is retiring from the Service at the end of this year, was given by the Secretary of State for Air at the Army and Navy Club on Dec. 4. The dinner was attended by the Under-Secretary of State for Air, by the Members of the Air Council, by senior officers of the Royal Air Force and by officials of the Air Ministry.

Air Vice-Marshal Sir Philip Game was born in 1876 and is a son of the late Mr. George Beale Game of Barn House, Broadway, Worcestershire. He was educated at Charterhouse and at the Royal Military Academy, Woolwich. He entered the Royal Artillery in 1895. He was promoted Captain, R.A., in 1901 and served in the Transvaal and Orange River Colony during the South African War in 1901 and 1902. He was mentioned in Dispatches during this campaign and was awarded the Queen's Medal with five clasps.

In 1908 and 1909 he attended a course at the Staff College, Camberley. In 1911 he won the Prize Essay Gold Medal of the Royal United Service Institution. He was promoted Major, R.A., in 1912.

He went to France in November, 1914, and in June, 1915, he was made a Companion of the Distinguished Service Order for service in the Field. In January, 1916, he was appointed Brevet Lieutenant-Colonel and in March, 1916, he was made G.S.O.1. British Expeditionary Force.

On March 19, 1916, he was appointed to the Headquarter Staff of the Royal Flying Corps at St. Omer to take over the operations side of the headquarter work. Wing Commander the Hon. Maurice Baring, Reserve of Air Force Officers, in his book *R.F.C., H.Q.*, 1914-1918, in a paragraph headed, March 19, 1916, St. Omer, writes:—"Game arrived. He is to be G.S.O.1. He comes from a Divisional Staff and is furious at being sent to the R.F.C."

He was promoted Lieutenant-Colonel, R.A., in August, 1916, and Brigadier-General in October, 1916. In May, 1917, he was awarded the Italian Order of the Crown (Officer) for distinguished services rendered during the course of the campaign in France. In June, 1917, he was appointed Brevet-Colonel and in December, 1917, he was made an Officer of the Legion of Honour (France) for distinguished services during the campaign.

On the formation of the Royal Air Force in April, 1918, he was appointed to the Air Staff as Colonel, R.A.F., and temporary Brigadier-General. He was mentioned in Dispatches six times during the War 1914-18.

In the New Year Honours of 1919 he was made a Companion of the Order of the Bath for services rendered in connection with the War. In March, 1919, he was appointed Director of Training and Organisation at the Air Ministry with the rank of Air Commodore. In August, 1919, he resigned his Army Commission on appointment to a permanent commission in the Royal Air Force.

In January, 1922, he was promoted to be Air Vice-Marshal. In December, 1922, he was appointed Air Officer Commanding in India.

In November, 1923, he was appointed Air Member for Personnel on the Air Council.

In the King's Birthday Honours of 1924 he was promoted Knight Commander of the Order of the Bath.

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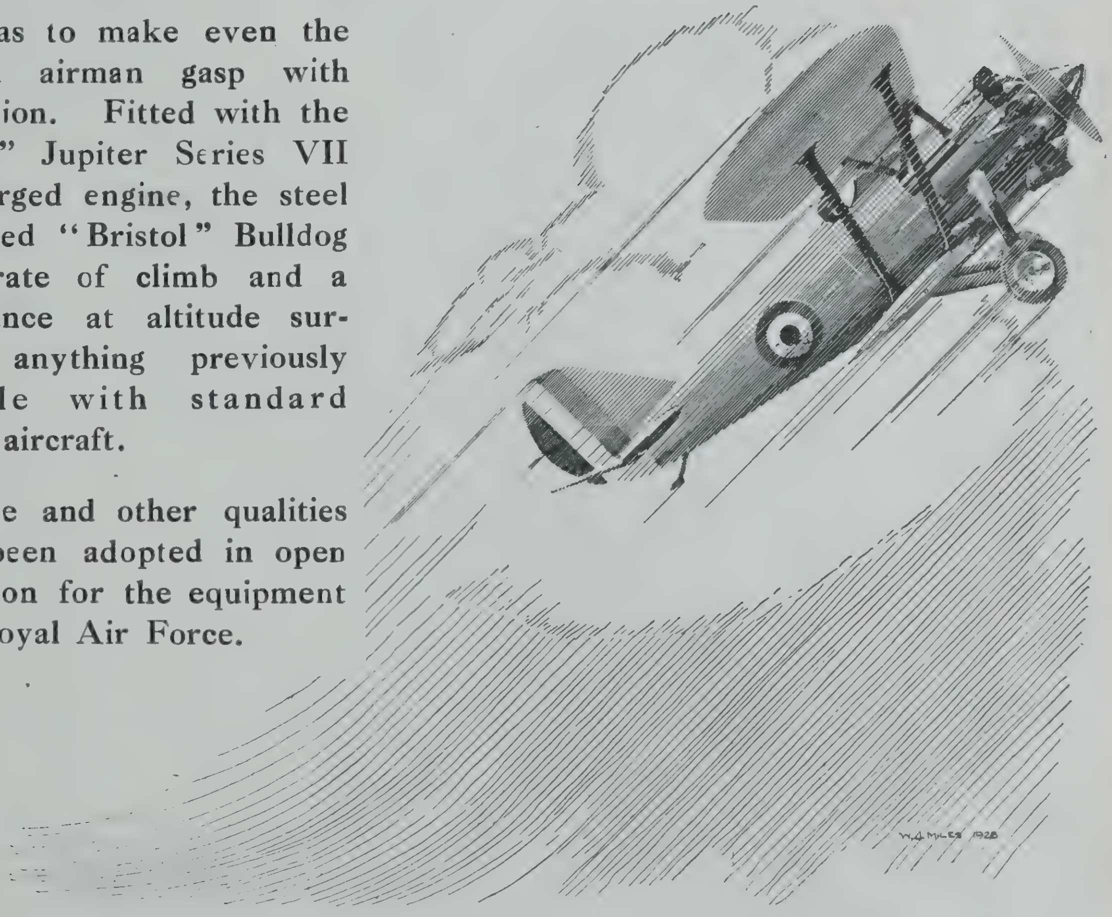

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Squadron Leader Bottomley.

Sq. Ldr. N. H. Bottomley, A.F.C., *p.s.a.*, whose appointment to command No. 4 (Army Co-operation) Squadron, is dated Oct. 15, 1928, was born in 1891 at Ripponden, Halifax, Yorkshire. He was educated at Halifax School and Brough College, London, and joined the 3rd (S.R.) Battalion, East Yorkshire Regiment, on Aug. 15, 1914. He learned to fly in January, 1916, and was seconded to the Royal Flying Corps in April, 1916. He was appointed Flight Commander and Staff Officer 2nd class with the acting rank of Major in September, 1918. In November, 1918, he was awarded the Air Force Cross in recognition of valuable flying services. In August, 1919, he resigned his Army commission on appointment to a permanent commission in the R.A.F. with the rank of Flight Lieutenant.

After the Armistice he served for a year at H.Q., No. 1 Group, Kenley, and in May, 1921, he went to H.Q., Egyptian Group, and from there to H.Q., Middle East, for Air Staff Duties. He was promoted to be Squadron Leader in June, 1922, and in December, 1922, he was posted to No. 4 Flying Training School, Abu Sueir, Egypt. In 1923 he won the second prize in the R. M. Groves Memorial Essay competition. He underwent a course at the R.A.F. Staff College, Andover, in 1924, and in May, 1925, was posted to the Directorate of Operations and Intelligence at the Air Ministry.

The Administrative Wing, Halton.

The unit now known as the "Administrative Section, Halton," will henceforward be designated, "the Administrative Wing, Halton."

This Unit is commanded by Sq. Ldr. W. H. de W. Waller, A.F.C.

No. 3 Stores Depot, Milton.

All postal correspondence for No. 3 Stores Depot, Milton, will be addressed as follows as from Dec. 1, 1928 :—The Commanding Officer, No. 3 Stores Depot, R.A.F., Milton, Didcot, Berks.

The R.A.F. in the House of Commons.

METAL CONSTRUCTION.

In the House of Commons on Dec. 3, in reply to a question by Sir N. Grattan-Doyle, the Under-Secretary of State for Air said that no more wooden types of machines were being brought into the Service. Metal was considered a more workable and more economical material than wood. Its qualities could be widely varied and scientifically controlled. It lent itself to mass-production, great durability and ease of maintenance. It was available in quantity whereas timber of the higher grade required had to be specially imported. Aircraft structures in metal were lighter, strength for strength, than wooden ones; they were less affected by extremes of climate, and by their resilience and freedom from splintering reduced the risk to personnel if the machine should be involved in a crash.

THE FLYING-BOAT DAMAGE.

In the House of Commons on Dec. 5, in reply to a question by Mr. Day, the Secretary of State for Air said that the aircraft damaged at Portland in the gale of Nov. 23 had been three R.A.F. flying-boats. One of these, a wooden-hulled boat, had parted from her moorings and had been wrecked against the breakwater. She was a complete loss except for the engines, which had been salved and were being repaired. The other two, which were metal-hulled boats, had collided with one another and sunk. Their hulls and engines had been salved and were now also undergoing repair.

FATAL ACCIDENTS.

In the House of Commons on Dec. 6, in reply to Mr. Buxton, the Secretary of State for Air said that, including accidents to personnel of the Special Reserve and of the Reserve and Auxiliary Air Force, the fatal accidents in the last four years were 43 in 1925, 54 in 1926, 40 in 1927, and 48 in 1928. The size of the Force, and consequently the amount of flying done, were increasing year by year.

The Royal Air Force Club.

The Royal Air Force Club will be closed from 2.30 p.m. on Thursday, Dec. 27, until 12.30 p.m. on Friday, Dec. 28 (for the purpose of holding the Annual Staff Dance) except in so far as affects bedroom accommodation (with breakfasts only) to Residents and Members who have engaged bedrooms prior to noon on Dec. 27. The Club will remain open during the Christmas Holidays.

SPORT IN THE R.A.F.

The R.A.F. Rugby Union.

The following names have been added to the list of R.A.F. Rugby Union referees :—

Flt. Lt. A. S. Thompson (Henlow), Wing Cdr R. J. Mounsey, O.B.E. (West Drayton), Grp. Capt. A. L. Godman, C.M.G., D.S.O. (Flowerdown), Wing Cdr. A. T. Harris, O.B.E., A.F.C. (Staff College, Andover), The Rev. W. T. Rees (Cranwell).

The R.A.F. Rugby Football Final Trial.

The final trial for the R.A.F. Rugby XV will be played on the Depot Ground, Uxbridge, on Monday, Dec. 17, at 14.15 hours. The teams will be :—

Whites.—Flg. Off. H. C. V. Jolleff (Upper Heyford). Flg. Off. G. D. Harvey (Worthy Down), Plt. Off. R. D. Cotton (Sealand), L-AC. Massey (Shrewsbury), Plt. Off. N. E. White (North Weald), or Flg. Off. T. H. Downes (Manston). Flt. Lt. R. V. M. Odbert (Eastchurch), Sq. Ldr. J. C. Russell (Air Ministry). Sjt. Hall (Wittering), AC. Maxwell (Duxford), Sjt. Kirby (Halton), Flt. Lt. C. D. Adams (Halton), Plt. Off. H. A. Constantine (North Weald), AC. Collins (Gosport), Flg. Off. G. R. Beamish (Bicester), Flt. Lt. J. Chick (Wittering).

Colours.—AC. Sargent (Andover), Flg. Off. C. P. Vines (Farnborough), L-AC. Coach (Felixstowe), Flg. Off. J. R. H. Pott (Hornchurch), Flg. Off. C. H. G. Bremridge (Digby), Plt. Off. M. G. Philpott (North Weald), Plt. Off. M. V. Delap (Netheravon), L-AC. Munkley (Henlow), F-S. Cockell (Henlow), Flg. Off. F. V. Beamish (Cranwell), Plt. Off. C. E. St. J. Beamish (Hawkinge), Plt. Off. Franks (North Weald), Plt. Off. P. N. R. Hallward (Andover), Flg. Off. R. J. Stevens (Worthy Down), Flg. Off. J. Clarke (North Weald).

The Referee will be Sq. Ldr. H. S. F. T. Jerrard (Manston).

International Boxing.

The team of Danish amateur boxers who are visiting England met a Royal Air Force team at Halton on Dec. 10. The R.A.F. beat them by four bouts to three. The results were :—

Fly-weight.—AA. Cooper (R.A.F.) beat Emil Sorensen (Denmark) on points.

Bantam-weight.—AC. Johnson (R.A.F.) beat Anker Poulsen (Denmark), who was disqualified for hitting low in the second round.

Feather-weight.—Svend Kaas (Denmark) beat AC. Fairclough (R.A.F.) on points.

Light-weight.—AC. Varley (R.A.F.) beat Richard Madsen (Denmark) on points.

Welter-weight.—Arne Sande (Denmark) beat L-AC. Garratt (R.A.F.) on points.

Middleweight.—Reinhold Sylvander (Denmark) beat AC. Clapp (R.A.F.) on points.

Light-Heavy-weight.—AC. Munkley (R.A.F.) beat Helge Jensen (Denmark), the referee stopping the bout in the fifth round.

A Record Bag.

The athletic success of the R.A.F. Cadet College, Cranwell, for the month of November must be something in the nature of a record.

On Nov. 3 the Cadet College Fencing Team beat the Cambridge University Fencing Team by 15 victories to 12. On Nov. 10 the Cranwell Cadets Rugger team beat Sandhurst team by 13 points to 8.

On Nov. 17 the Cadets Rugger Team, having already beaten Sandhurst, beat the R.M.A., Woolwich, by 24 points to 15.

On the same day the Cadets Soccer Team beat the R.M.A., Woolwich, by 2 goals to 1.

On Nov. 24 the R.A.F. Cadet College beat the London Rifle Brigade at Skill-at-Arms by 30 victories to 22.

These successes by a Unit with a strength of under 120 is a matter for considerable congratulation, especially as each of their opposing establishments has three or four times as many cadets.

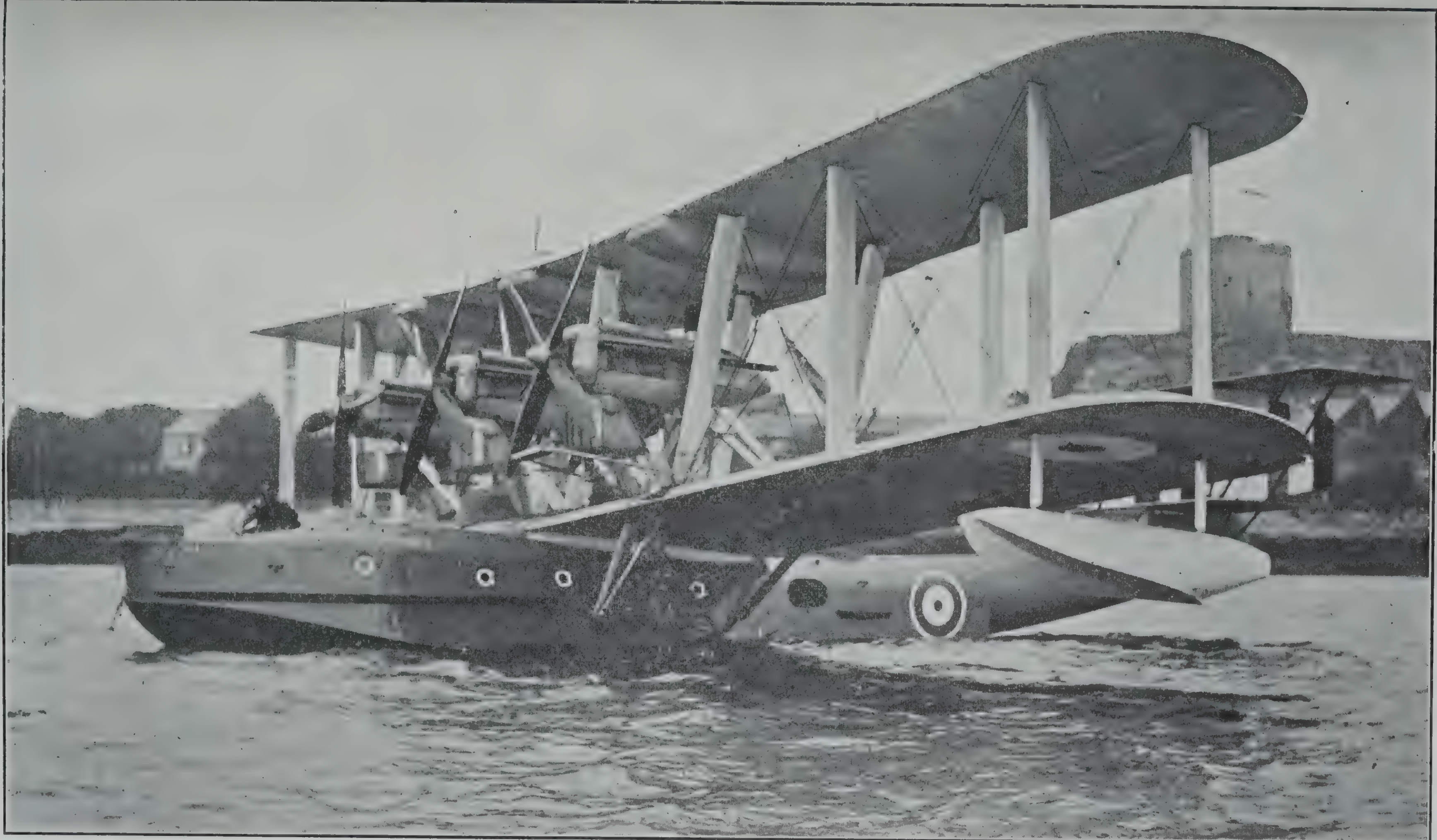
AN APPRECIATION.

[There are no finer pilots than those of the Netherlands, as many long-distance flights have shown. Therefore appreciation from one of them is worth having. Even at this late date those who had part in the R.A.F. Display will be glad to know that their work was approved by one who is entitled to judge, and so one gives hereafter a portion of a letter written by an officer of the Netherlands Royal Air Force :—]

It would carry me too far, to describe exactly what we thought and felt in the current of that Saturday afternoon, but as a summary I can tell you that at a certain moment we came to the conclusion that if we wanted to make sure that we ourselves still would believe the next day the things we saw before our eyes, we should have to take photos. We did not however, but we waited for the next number of The Aeroplane.

Now you make it a habit of qualifying the Dutch as good airmen (with which we do agree, but of course we are far too modest to say so). Especially of formation flying we have some knowledge, more I presume than any other Military Air Service on the Continent. And that is the very reason why we are in a position to appreciate the tremendous performance the R.A.F. bomber and fighter squadrons accomplished at this Display.

We still do not know what to admire most,—the technique perfection of the aerobatics and the formation flying in itself (the very bumpy weather taken into consideration), or the never-failing organisation of the Show as a whole, as well as in every minute detail of the smallest event. The manœuvring with formations as big as 27 aeroplanes (and three formations at a time at that!) with an exactitude of place and time, only expressible in metres and seconds, was nothing less than grand. Also the fact that *not one* event in the crowded 4½ hours of the programme we attended went wrong (except the piece of burning fabric falling from the kite balloon, setting on fire the petrol refinery a few minutes too early) impressed us much.



THE 2,100 H.P. METAL-HULLED BLACKBURN "IRIS" FLYING BOAT

Commenting on his 17,000 miles experimental flight to India and back in an "Iris II" flying boat, the Under-Secretary for Air stated that "From every point of view the flight was a great success and the machine behaved splendidly." Before starting for India this 14-ton aerial-cruiser flew from Plymouth to Hull without the centre engine.

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THE EMPLOYMENT OF FLYING-BOATS.

A Lecture on the Employment and Development of Flying-Boats was given by Wing Cdr. R. B. Maycock, O.B.E., R.A.F., at the Royal United Service Institution on Dec. 5.

Vice-Admiral Sir H. W. Richmond, K.C.B., Commandant of the Imperial Defence College, was in the Chair.

Wing Cdr. Maycock, who is now in the Directorate of Personal Services at the Air Ministry, commanded for three years the Marine Aircraft Experimental Establishment at Felixstowe. He was originally in the Merchant Service, and transferred to the Royal Navy from the R.N.R. in 1913. He was appointed to the R.N.A.S. during the War 1914-18 and learned to fly in 1917.

Wing Cdr. Maycock said that he naturally had a strong prejudice in favour of flying-boats, having had so much to do with them in the past. He thought that they would take a position of great importance in the development of both military and civil flying, principally because they were not, like land machines, restricted to aerodromes. The flying-boats of to-day could be moored out for months at a time in any sheltered water without suffering more deterioration than if they were housed in sheds.

The Past.

In a brief history and description of the flying-boat Wing Cmdr. Maycock said that the first practical experiments in this type of aircraft were made by the Admiralty at Felixstowe in 1916 when the " F " type was evolved. [The first flying-boat in Great Britain was one flown by Mr. Glenn Curtiss at Brighton in 1913, and with it was associated Lt. John Porte, R.N. (retd.), who afterwards re-joined the Navy and produced the " F " boats when commanding at Felixstowe.—C. G. G.]

Variations of this type were in use until 1924 and, although numerous experiments were made with larger boats and a certain number of these were manufactured and put into operation by the exigencies of the War, they were not successful to any extent. In spite of the fact that the flying-boat was not developed until comparatively late in the War it had been claimed that one-third of the total mileage flown between 1916 and the end of the war was done in flying-boats. These boats had been employed with considerable success on Fleet co-operation, reconnaissance, submarine spotting, and on convoy work with merchant shipping.

The closing down of most of the large and expensive seaplane bases for purposes of economy after the Armistice had served a very useful purpose in the development of these craft in that it had been necessary to develop them more on the lines of seaworthiness, and to increase their ability to ride out high seas and wind at their moorings and to operate from any sheltered harbour or inland water and without fixed bases. The result had been that the flying boats were now the most mobile units in the R.A.F.

Wing Commander Maycock then gave the relative performance figures of the F.5 of 1916 and the Southampton of 1925. The F.5 had a maximum speed of 74 knots and a cruising speed of 58 knots. Its range was 350 miles and its bomb load 500 lbs. It had a span of 102 feet and weighed 5½ tons. The Southampton had a maximum speed of 95 knots and a cruising speed of 65 knots. Its range was 585 miles with full load and 700 miles without war load. Its span was 25 feet less than the F.5 and it weighed one ton more.

In the more recent types size was the dominating factor.

At this stage of the lecture Wing Cdr. Maycock showed a number of lantern slides illustrating the development of the flying-boat from 1916. These slides showed the Titania a four-engined experimental boat, built by the Fairey Aviation Co. Ltd., with a span of 139 feet, among other old types several pictures of the F.5 boats and some of the recent designs. He pointed out the marked difference in the water disturbance between the old and the new types. He also showed several views of the first floating dock for flying-boats in use at the Isle of Grain in 1922.

Other interesting slides illustrated towing tests in high seas in which flying-boats were towed at a speed of eight knots into and across wind. One picture showed one flying-boat towing another from Weymouth Bay to Portland Harbour on an emergency occasion.

Seaworthiness.

Describing the seaworthiness of the modern flying-boat Wing Cdr. Maycock said that the Blackburn Iris was moored out at Felixstowe during the gale early this year when the Thames overflowed its banks. She rode out the gale for 24 hours before she began to drag her anchor. The sea was too rough for any of the Felixstowe sea-going boats to go out and make her fast. Felixstowe sent an S.O.S. to the Navy at Harwich who replied that it was unsafe to send any of their boats. Fortunately the Iris' anchor fouled another anchor, she held fast to it, and survived the gale undamaged.

Another advantage of the modern flying-boat's ability to ride out a rough sea was that it removed the risk of damage in launching and bringing ashore. A further instance of their seaworthiness was the occasion when a Southampton was towed from Felixstowe to Calshot in weather so bad that they had to put into two harbours on the way.

Continual experiments were being made to reduce the speeds of alighting and taking-off without interfering with other important factors. Improvement in this direction would make for greater safety in rough seas. At the same time the Lecturer thought that the seaworthiness question could be exaggerated, as the principal function of a flying-boat was to remain in the air. Experiments were also being made with a view to finding the most reliable kind of anchor, the difficulty being that an anchor and cable heavy enough to hold the flying-boats was usually too heavy to be carried in the machines.

Successful experiments had been made in refuelling from barges, oil tankers, pier heads, etc.

Bases and Supplies.

Discussing bases and supplies Wing Cdr. Maycock said that flying-boats required advanced bases and a main base. Flying-boats lent themselves more readily to temporary repairs than any other kind of aircraft, and a temporary base could be made practically in any harbour with sheltered water about one mile square. The selected spot should be quite enough for the crew to get proper rest, and a sandy beach was useful for beaching boats for repair.

In 1922 four flying-boats had been moored out at Spithead without damage in a 42-knot gale which had made their parent ship the *Ark Royal* very uncomfortable.

The advanced base must be in communication with the main base. He thought that an advanced base for flying-boats could be found anywhere in the world within 500 miles of a legitimate objective.

The Present.

Wing Cdr. Maycock then described the work of the flying-boat units in the R.A.F. at the present time and said that the best example of the development of these craft was the cruise of the Far East Flight, which, when it returned to Singapore, would have been absent from England for fifteen months and would have flown approximately 25,000 miles.

Flying-boats had no special military function at present but in the future they would probably be divided into as many classes as the land machines were at present, day and night bombers, and high and low performance machines. He thought that their duties would not be limited to operations over the sea but that they would co-operate with the Army as well as with the Navy and that they would also be used on reconnaissance and bombing duties, for patrol over large areas and for convoy and escort duties. He did not not think that they would entirely replace aircraft-carriers.

The Future.

With regard to Civil Aviation he felt that flying-boats were bound to take a very important part in its future. Already in the Baltic there was a network of flying-boat lines working every day. Here again they had the advantage that no aerodrome was required.

Wing Cdr. Maycock visualised the flying-boat of the future as having an extreme range of 1,500 miles, to allow it to reach its theatre of operations independently of foreign countries, a range of 870 miles with full load, a speed of 133 m.p.h. with a load of 2,000 lbs. A very high top speed would be required for anti-submarine operations.

The Discussion.

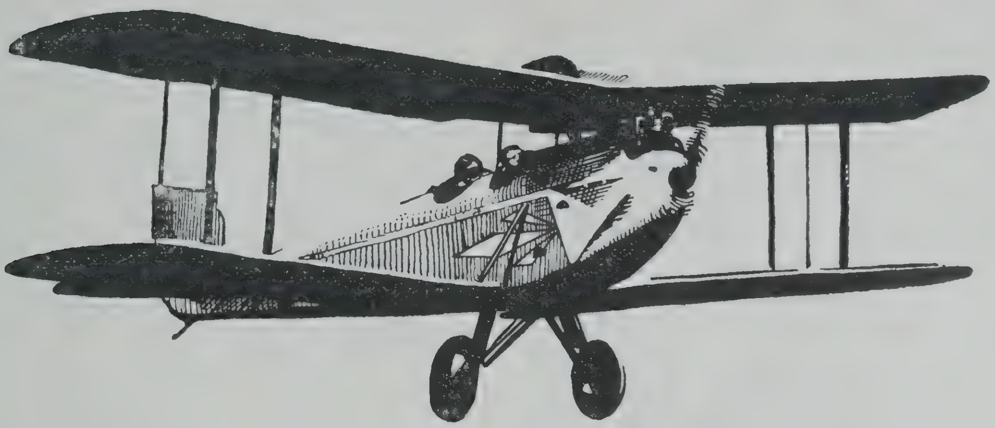
Opening the discussion Air Vice-Marshal Sir Vyell Vyvyan (a Director of Imperial Airways) said that it was only recently that flying-boats had become a commercial proposition. The mooring problem was still a difficulty and anchors for flying-boats had to be far bigger than anyone would imagine.

Vice-Admiral Richmond said that the uses of flying-boats for military purposes was limited to transport or as weapon carriers. At present they could not carry a useful number of troops although under certain conditions they could be used for the quick transport of small numbers of men. As weapon carriers they could be used as gun-boats or as torpedo-boats. They were not very valuable as gun-boats but they were useful as carriers of under-water weapons, i.e., torpedoes or bombs.

For protection of commerce against submarines they must have more flexible speed to enable them to keep down to the speed of the convoys. He thought their value for submarine patrols in the past and their possibilities for this work in the future were very much exaggerated. He did not think they were much use for chasing raiders and as raiding warships had far too wide a radius of action.

He thought the lecture had been a very interesting one and he wished that more of the younger officers of the Services would come forward and give the Institution their views.

C. M. Mc



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THE GUEST SCHEME.

The organisation which has hitherto been talked-of as the Guest Scheme is to be known officially as National Flying Services Ltd. The name is a good one. It is thoroughly comprehensive without tying the firm down to any particular activities. It is a name which might have been adopted by any purely commercial undertaking, so that it does not necessarily imply Government support or control. And, if the firm succeeds in doing what its founders have set forth as their intention to do, it will justify its name by doing a National service.

For the information of those who have not as yet taken any particular interest in the firm, something may be said of those responsible for it.

The Chairman of Directors is Sq. Ldr. the Right Hon. F. E. Guest, C.B.E., D.S.O., M.P., brother of the present Lord Wimbourne. As an officer in the Regular Army, Sq. Ldr. Guest served in the Sudan and in South Africa, and in the War 1914-18. He was Secretary of State for Air in Mr. Lloyd George's Government in 1921-22, and during that period he worked with all his power for the good of the Air Force and of Civil Aviation. He was appointed to command 600 (City of London) (Bombing) Squadron, Auxiliary Air Force, on its formation in 1926. He owns a Junkers and a Moth.

The Managing Director of the firm is Lieut.-Colonel Ivo A. E. Edwards, C.M.G. As a Captain in a heavy battery, R.G.A., he went to the Dardanelles from India early in the War 1914-18, and when, after a couple of months, all the guns went out of action he joined the R.N.A.S. under Wing Cdr. Samson, R.N., as an observer.

Capt. Edwards had tried to get into Military Aviation as early as 1911, and was nominated for the first course at the Central Flying School in 1912. But he was obliged to join his battery in India. Consequently, after having served as an observer with the R.N.A.S. in Gallipoli for nine months, he applied to be attached to the R.F.C.

He joined the first course at the new school at Oxford, then went to Northolt, and afterwards to Norwich to fly F.Es. In the meantime he became in the course of Army promotion a Major, R.A., and with that rank he joined No. 6 Squadron in France early in 1916 as a Flying Officer. But by the end of 1916 he was promoted to command No. 9 Squadron on the Somme.

In 1917 he returned to Home Establishment to command a Wing at Waddington and later in the same year he returned to France to command the 15th Wing in General Charlton's Brigade. In May, 1918, he came home for Staff Duty at the Air Ministry where he remained until the Armistice.

In July, 1919, he retired from the R.A.F. and the Army and went to India for Handley Page Ltd., returning at the end of 1921 owing to ill-health. In 1922 he was appointed Deputy Director of Air Transport at the Air Ministry under Air Vice-Marshal Sir Sefton Brancker, and later was appointed Technical Advisor to the Director of Civil Aviation. In this office he served until Nov. 30 of this year when he took over his duties as Managing Director of National Flying Services Ltd.

There can be few officers of his seniority in the Army who served in the R.F.C. with such juniority and yet saw so much Active Service.

The Deputy Managing Director of N.F.S. Ltd. is Mr. G. E. F. Boyes, late R.A.F., who first became prominent in Civil Aviation as Secretary of the Seven Aero Club, which was one of the first Light Aeroplane Clubs and entered machines in all the earliest light aeroplane competitions.

The other Directors of the firm are Colonel the Master of Sempill, A.F.C., Sir Alan Cobham, K.C.B., Mr. A. G. Hemsley of Halsey, Lightly and Hemsley, Solicitors, and Mr. John Graham Peel, J.P., Vice-Chairman of the Fine Cotton Spinners Association.

Thus it may be seen that the firm has a very strong Board, the majority of whom are thoroughly up-to-date in their knowledge of aviation. And if the firm is not a success it will certainly not fail for lack of trying. It has set itself a very big task, and if it succeeds it will certainly do a very great deal to popularise aviation in this country.

EARLY FLIGHTS.

The Special Committee appointed by the Royal Aero Club to investigate the claims of British Subjects to early aeroplane performances in the British Isles, met on Dec. 6 at the Royal Aero Club, when there were present The Right Hon. the Lord Gorell, in the Chair, Capt. G. de Havilland, Lieut.-Col. W. Lockwood Marsh, and H. E. Perrin, Secretary.

The Committee took evidence from the following claimants who appeared before them :—Lieut.-Col. J. T. C. Moore-Brabazon, M.P., Mr. A. V. Roe, and Mr. A. H. Phillips.

A NEW AIRCRAFT FIRM.

An interesting notice appears under the heading of new companies this week. The Desoutter Aircraft Company Ltd. has been registered, with Mr. Marcel Desoutter and Mr. M. L. Bramson as Directors.

Mr. Desoutter was one of the earliest Blériot pilots in this country and lost his leg as the result of a crash at Hendon in 1913. Being a trained aircraft engineer, he objected to carrying seven pounds of wooden leg, and proceeded to make himself a leg of duralumin, on aircraft principles, which weighed 3 lbs. He made this leg a working proposition just before the War, and as the result of his personal success with it requests for similar legs soon came to him in the early days of the War. From this small beginning he built up the firm of Desoutter Brothers Ltd., and designed a leg suitable for mass-production. At the end of the War, after years of arguing with the Army Medical Service as to the respective merits of wood and metal, the firm received a contract for 50,000 duralumin legs for all ranks.

For some years Mr. Desoutter has been anxious to return to aviation, and the registration of this firm indicates that his wish has been achieved. As yet one cannot say much about the firm's intentions, but when they are disclosed they will be found to be very interesting indeed.

Mr. M. L. Bramson has long been known in this country as a pilot and a first-class engineer. He learned to fly during the War and tried to join the R.F.C., but was refused admission owing to his Danish origin. After the War he became one of the most expert and best known of Sky-writing pilots. Also he became a Director of the British Instrument Co. Ltd.

He has a number of other interests in mechanical engineering. And he was one of the leaders in the movement which resulted in the amalgamation of the Institution of Aeronautical Engineers with the Royal Aeronautical Society.

Under these circumstances, and others which cannot at the moment be disclosed, this new firm has every prospect of success. And it should do a great deal for the progress of Civil Aviation.

TRADE IN SOUTH AFRICA.

Aircraft firms in this country which are interested in South African business should note the fact that Capt. S. M. Wood, of South African Enterprises Ltd., will be arriving in England about the middle of December with the intention of negotiating South African business with English firms.

Capt. Wood served in the South African Air Force and later was on the Headquarters Staff of the R.F.C. and R.A.F. in France. Since the War he has been in business in South Africa but has kept closely in touch with aeronautical developments. He has all the latest information about South African aviation and the various schemes which have been put forward and have failed to materialise, and he has definite proposals to make to people who are interested in the establishment of an air transport service to South Africa. He also wishes to discuss prospects with those who are interested in manufacturing aircraft in South Africa and especially desires to do business with manufacturers of aircraft engines, parts and accessories.

Recently Capt. Wood has connected up with a big organisation in South Africa which is prepared to deal with all aviation matters. And his trip to England is for the purpose of linking up that firm with the right people here and of endeavouring to get something solid and lasting started in South Africa.

Those who are interested will find that Capt. Wood has introductions from the most influential people in South Africa. They can get in touch with him either by writing to him at South Africa House, Trafalgar Square, London, W.C.2, or to the office of The Aeroplane.

THE WESTERN AIR PARK.

Work is now proceeding on the Air Park at Heston so rapidly that the proprietors of Airwork Ltd. have established a temporary office at Albion Lodge, Cranford, Middlesex. Mr. Norman or Mr. Muntz may be found there during all reasonable working hours, but prospective visitors are advised, in case the one who is on duty happens to be called away, that appointments may be made beforehand by telephoning Hayes 360.

ANOTHER AMALGAMATION.

Rumour, still as active as ever in the Aeronautical Community, insists that Mr. John Lord, who has for many years been a leading figure of A. V. Roe and Co. Ltd., is joining the alliance recently formed between Mr. A. V. Roe and Mr. Samuel Saunders of Cowes. As one of the most popular personalities in aviation everybody will wish well to Mr. Lord.

A CARLISLE MUNICIPAL AERODROME.

Sites for a municipal aerodrome at Carlisle have been submitted to the Air Ministry, who have selected one at Kingstown, and negotiations for the land, which is owned by Sir James Watt, are proceeding.

Kingstown is two miles north of the city on the direct road to Glasgow.

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"Those who saw the beautiful 'Wizard' Monoplane fitted with this (Rolls-Royce) Engine leap skyward when the pilot opened his throttle gained some idea of what the 'F' Engine enables designers to accomplish."—From The Daily Mail, 2nd of July 1928

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n Friday, December 7th, Mr. A. S. Butler, piloting his
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Streets

BY BLUEBIRD FROM BERLIN.

[By Colonel the Master of Sempill, A.F.C.]

From October 7 to December 4 the Bluebird seaplane which went to the Berlin Aero-Show was moored out on the Wannsee. During October a representative of the Blackburn Co. was in Berlin and visited the Wannsee about twice a week to run the engine (75 h.p. Armstrong-Siddeley Genet). He, however, left Berlin at the end of October and during November the machine was not touched, being merely watched by one of the boatmen attached to the Royal Potsdam Yacht Club.

While the machine has been moored out two heavy gales have swept over Europe, and these gales caused serious damage to the Rohrbach Romar at Travemünde, and to British flying-boats at Portland and Felixstowe, but the little Bluebird survived. Messages were received from Major Wronsky of the Luft Hansa after each gale saying that the machine was quite all right but, frankly, whether this optimism was really warranted seemed somewhat doubtful.

On December 3 I again visited the Wannsee and found the machine in perfect condition in every way. The engine, it is true, refused to start, but this was merely due to a swollen bush in the make-and-break of each magneto and when this defect had been remedied the engine started without difficulty. As the machine had been moored out almost without intermission since July all the metal parts had been properly painted, and wires, etc., greased, so that no deterioration on the score of rust could be observed.

The fact that the machine has so well withstood these really violent winter storms is not only a tribute to the particular machine but to the light seaplane as a type. It shows that even to-day light seaplanes with any development behind them can be used in a serious way without elaborate organisation and accommodation.

Damage to marine aircraft generally occurs when they are being man-handled, and if they are treated, as is intended, by being flown or handled on the water under their own power then there should be no special difficulties.

The flight back from Berlin was interesting as showing the great advantage the seaplane has over the land machine under certain bad weather conditions and also, of course, it proves the need for proper organisation of routes, if they are to be flown over regularly under all weather conditions.

Tuesday, Dec. 4.—Left Wannsee 9 a.m. and flew via Potsdam and Ketzin to Brandenburg. After leaving Brandenburg continued to follow the River Havel but ran into foggy weather after passing Rathenow. When passing Havelberg visibility was only about 100 yards, but after Wittenberg visibility improved, becoming bad again after passing Hitzacker.

By the time Bleckede was reached it was so bad that there was a danger of colliding with the tugs and barges on the river. In fact several of them had narrow shaves, so a landing was made.

When in the middle of the river it was impossible to see either bank. The machine lay to her own anchor for 2½ hours before the weather cleared sufficiently for any move to be made. The fog showed no signs of lifting so the machine was moored to the bank alongside of Heisterbusch Farm.

On this day no machines had left Berlin,—at least, the machine that had left for London had to return speedily on account of the fog. With the seaplane, low flying in fog is possible under conditions that no aeroplane could look at.

Wednesday, Dec. 5.—By 11 a.m. the fog had cleared somewhat and it was possible to leave for Hamburg. The machine took off well, running up stream (the Elbe was in full flood) against a light wind. The course of the Elbe was followed to Altona, Hamburg, which was reached in about an hour. There fuel was taken on board with the assistance of the Hamburg pilot-boat and aided, also, by the officials of the Luft Hansa.

At 2 o'clock left Hamburg and continued down the Elbe, past Cuxhaven and down the coast towards Wilhelmshaven. Speed was reduced by heavy contrary winds and the neighbourhood of Wilhelmshaven was reached about 4 o'clock in thick weather with light rain. As it was impossible to see further, a landing was made in the Naval Base of Wilhelmshaven, where the machine was allowed to remain, thanks to the courtesy of the Commander-in-Chief. It was moored in the dock provided for the destroyers which were away in the Baltic.

Thursday, Dec. 6.—Although the weather in the early morning was fine, by 8.30 a thick fog had come on, and it was impossible to leave. It improved in the afternoon but it was then too late to leave for Amsterdam.

Friday, Dec. 7.—Left Wilhelmshaven at 9.30 a.m. in strong W.S.W. wind. In order to shorten the journey to Amsterdam as much as possible, followed the course of the Ems-Jade Canal to Emden and then, crossing the mouth of the Ems, followed the Dutch Canal system to Groningen and Leeuwarden. Progress had been very much delayed owing to heavy head winds, and speed over the ground was not much more than 25 miles an hour.

It took some 4½ hours to reach the Zuider Zee from Wilhelmhaven, by which time the petrol had become nearly exhausted. A landing was, therefore, made on a lake in Friesland in the neighbourhood of Oudeya, where petrol was obtained from the local Dutch garage with which to complete the remaining hour's flight to Amsterdam. Arrived Amsterdam at 4.30.

Saturday, Dec. 8.—Left Amsterdam at 8.30 a.m. and followed the course of the North Sea Canal to the coast at Ijmuiden. Left the Dutch coast about 9 o'clock and saw the English coast after about 3¼ hours' flying. W.N.W. wind all the way across but good visibility until approaching the English coast when it was reduced to about a mile.

After re-fuelling at Felixstowe left at 1.30 for the Welsh Harp, London, arriving at 3 o'clock.

I had many interesting experiences, particularly when staying in that out-of-the-way farmhouse on the Elbe where, for many hours, I was cross-questioned by all the local inhabitants, who were extremely interested,—never having seen a seaplane before. Knowing little German this was a bit of a task. The following morning when I left, the schoolmaster brought the entire school out to see the machine and the children gave me a noisy and enthusiastic send-off.

Hamburg is getting well prepared for marine aircraft and the pilot-boat there is quite at home in picking up seaplanes and putting fuel on board, etc.

At Wilhelmshaven I stayed with the Chief of the Staff to the Commander-in-Chief, Capt. Saalwaechter—one of the most able submarine commanders during the War. All the officers there were extremely kind and very helpful, as one knew they would be, and I spent a very interesting day and a half with them. They could not do enough for one, and the same applied to the ratings who were always to hand with the picket-boat to visit or attend to the moorings.

Germany is a very good country to fly around in, as when one comes down everyone is helpful and intelligent and really keen to give useful help.

THE TOURING BLUEBIRD.—Colonel Sempill and the Blackburn Bluebird seaplane (Genet engine) on Martnaham Loch near Ayr, in the course of his tour by air round the edge of Great Britain, as described recently. This same machine was used in the German tour descr ibed above.

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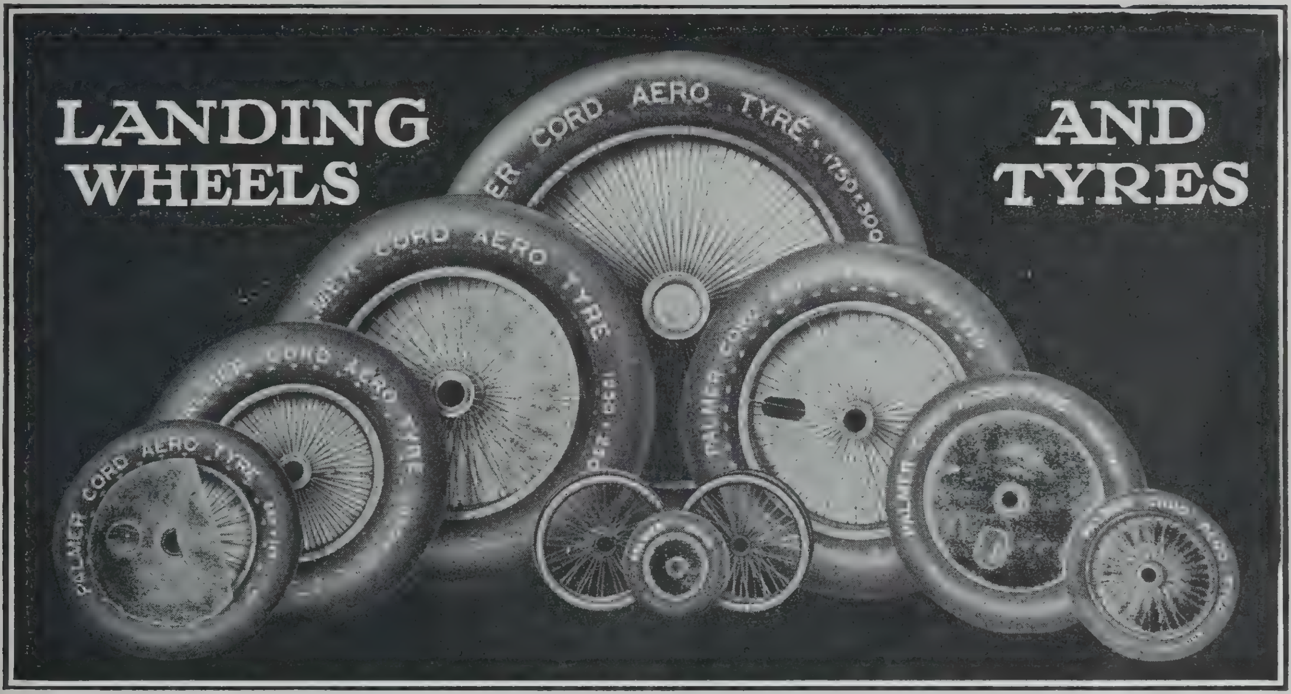

STANDARD SIZES.

Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore	
		m/m	m/m	m/m
375 × 55	168	111·12	25·4	Central
,,	195	130·	38·09	Central
300 × 60	16	111·12	25·4	Central
450 × 60	30	89·	31·75	Central
,,	172	130·	38·09	Central
575 × 60	21	160·	28·	Central
,,	180	150·	38·09	104/46
,,	186	120·	34·92	Central
,,	190	150·	38·09	Central
600 × 75	21	160·	28·	Central
,,	180	150·	38·09	104/46
,,	186	120·	34·92	Central
,,	190	150·	38·09	Central
700 × 75	78	178·	44·45	132/46
,,	79	178·	44·45	Central
,,	100	178·	38·09	132/46
,,	101	178·	31·75	132/46
,,	196	178·	55·	Central
600 × 100	188	120·	34·92	Central
,,	304	150·	38·09	104/46
,,	333	120·	34·92	Central
700 × 100	77	178·	44·45	132/46
,,	92	185·	55·	135/50
,,	95	185·	55·	Central
,,	99	178·	38·89	132/46
,,	112	150·	38·09	Central
700 × 100	176	178·	44·45	Central
,,	179	178·	55·	132/46
650 × 125	119	178·	55·	132/46
,,	147	178·	55·	Central
,,	198	120·	34·92	Central
,,	336	178·	44·45	132/46
750 × 125	77	178·	44·45	132/46
,,	92	185·	55·	135/50
,,	95	185·	55·	Central
,,	99	178·	38·89	132/46
,,	112	150·	38·09	Central
,,	176	178·	44·45	Central
,,	179	178·	55·	132/46
800 × 150	161*	185·	55·	135/50
,,	162*	185·	55·	Central
,,	163*	185·	66·67	135/50
,,	169†	185·	55·	135/50
,,	177	185·	55·	135/50
,,	183	185·	55·	Central
,,	211*	185·	60·32	135/50
1000 × 150	167	185·	55·	125/60
,,	174	250·	80·	Central
,,	182	185·	55·	Central
,,	187	220·	66·67	Central
,,	201	185·	60·32	125/60
,,	210	185·	60·32	Central
1000 × 180	148	220·	80·	Central
,,	149	185·	55·	Central
,,	155	220·	66·67	Central
,,	166	185·	55·	125/60
900 × 200	107	185·	55·	Central
,,	108	185·	55·	125/60
,,	128	220·	66·67	Central
,,	137	250·	80·	Central
,,	157	185·	80·	Central
,,	202	185·	60·32	Central
1100 × 220	134	220·	66·67	Central
,,	136	250·	80·	Central
975 × 225	192	185·	60·32	Central
,,	194	185·	55·	125/60
1250 × 250	314	250·	80·	Central
,,	154	304·8	101·6	Central
1500 × 300	305	304·8	152·4	Central
,,	306	304·8	101·6	Central
1525 × 325	197	304·8	101·6	Central
1750 × 300	139	400·	152·4	Central
,,	191	350·	150·3	Central
1750 × 350	193	400·	125·	Central

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(573)

DE HAVILLAND CELEBRATIONS.

On Dec. 7 the Annual Dinner of the De Havilland Aircraft Co. Ltd. was held at the Wharncliffe Rooms. Something like 500 of the office staff and production hands were present and that only represented a third of the total number of employees,—a very different party from that given only three or four years back when, the firm having made a profit for the first time in its existence, the Directors and Departmental Managers had a dinner along with half-a-dozen friends "to spend the dividend," as the Chairman said.

On Friday Mr. Alan Butler, Chairman of Directors, was in the Chair and a remarkably good chairman he made. There can be very few men of his age and upbringing who have such a complete grasp not only of business but of the handling of business men.

After dinner the toast of the Company was proposed by Mr. Tom Clark, who is probably the oldest inhabitant of Stag Lane, and has certainly been connected with De Havilland aircraft longer than anybody in the business, for he has been with Capt. de Havilland since 1914 and was at the old Aircraft Manufacturing Co. Ltd. when the D.H.1 was produced.

In a really eloquent and moving speech Mr. Clark compared this gathering with the corresponding celebration held in the firm's canteen only twelve months ago. He reminded those present that then the Chairman had personally given £250 to the organisation which looked after the welfare of the employees.

Referring to the future of the firm, he said that it was full of hope, for, judging by the intelligent faces of the newcomers who had joined the firm in the enormous increase in the number of employees during the past year, they would be well able to uphold the rate of output. The old hands in the firm, like himself, welcomed new blood, so long as it brought new energy and new ideas into the firm.

He mentioned the new laurels which had been added to the name of the firm recently by Mr. Broad and Mr. Hope and Mr. Butler and Capt. de Havilland.

He drew attention to the way in which new buildings and new workshops were going up everywhere at Stag Lane and he thanked the people in the shops for the energy which besides producing D.H. aircraft had produced the finest engine in the World. He recalled that there were three Gipsy engines in the King's Cup Race and they all put up wonderful performances. Mr. Hope's machine had won. And since then Mr. Broad and Mr. Butler had put up World's records.

Also he pointed to the significance of the fact that the originator of the firm, Capt. Geoffrey de Havilland himself, had put up an altitude record with his good lady as passenger. He said that although their attempt to visit Mars did not succeed, they went higher than anybody else had done on this class of machine.

Judging by the way in which Mr. Clark's speech was received there are plenty of people in the employ of the De Havilland Company who can compete with him in their enthusiasm for the firm, though not in length of service.

Mr. Alan Butler, replying, said that this was the first time he had addressed a representative gathering of the firm. He thanked Mr. Tom Clark personally for the way in which he proposed the toast and said that he (Mr. Clark) had seen all the D.H. machines through the shops from the D.H.1 to the D.H.75.

Mr. Butler reminded his hearers that the superannuation fund formed to help the firm's workers was evidently appreciated because out of those eligible to belong, 41% were contributors to the fund. He said that up to the present date the firm had turned out 275 Moths in 1928 against 185 Moths in the previous year [this should bring them up to well over 300 by the end of the year], and their output was booked up to the end of March next year. They had built and delivered five D.H.61s [the Jupiter-engined cabin machine]. The Hound, he said, held three World's records, but it had not been selected for the R.A.F. by the Air Ministry though it was superior to its competitors in performance.

Referring to World's records, he said that all those held by British machines with the exception of one were held by De Havilland aircraft.

The engine output was well into its stride and they had already turned out 131 Gipsies.

The firm's progress could be judged by the fact that twelve months ago they were going through a difficult period and had only 400 men on the pay-roll. Now they were able to give full-time employment to 1,560 people,—besides overtime to a good many. The new shops which were now springing up would hold still more people.

Subsidiary firms had been formed in Australia in 1927 and in Canada in March 1928. He read a cable from Australia saying "Best wishes from down under," and one from Canada saying "Cheerio chaps, don't forget us." These branches were booking a large proportion of the firm's output and he proposed that cables should be sent to them wishing them future prosperity.

Concerning further developments, Mr. Butler said that the Moth Aircraft Corporation had been formed in the U.S.A. to build machines under licence. Four Hercules biplanes [three Jupiter-engines each] were now almost ready for West Australian Airways, who would use them on the extension from Perth to Adelaide. All would wish success to Major Brearley in this development.

He claimed that the De Havilland Co. were entirely responsible for the original development of light aeroplanes.

The De Havilland School was going strong and had put in 4,441 flying hours this year against 2,266 hours last year.

Mr. Butler suggested that what with their branches Overseas and the number of men they were employing here and Overseas, the De Havilland Company were playing a big part in Empire Trade. He impressed on his hearers that if we in this country would only buy Empire goods we should have a better chance of selling our own goods all over the Empire. He drew attention to the fact that all over the Empire all the cars were American instead of British and that to help ourselves we must be second to none in our grip on the World's markets. [Here one may perhaps be allowed to interpolate the remark that if all British manufacturers in all business would lay themselves out as the De Havilland Aircraft Co. have done, to provide our Dominions overseas with what the Dominions want instead of trying to foist onto them things made for home consumption, which are quite unsuitable for the Dominions, we should get the Empire markets easily.]

In conclusion Mr. Butler thanked everybody for their splendid co-operation and the hard work they had done and he wished them all a prosperous future.

Thereafter Capt. Geoffrey de Havilland presented the D.H. Challenge Cup won by the Engine Department and the Australian Challenge Cup won by the Office Staff in athletic events, and he congratulated Mr. and Mrs. Butler on having that very day in a Gipsy-Moth beaten the existing World's record for speed for light aeroplanes.

After that Mr. Tyler briefly proposed the toast of the Ladies, to which Mrs. Leech replied.

Then there was an excellent musical programme under the direction of Mr. McCabe by the Gipsy Orchestra and several competent musicians.

GOOD WORK.

A correspondent in Canada says that the first Gipsy-Moth delivered to the Forestry Branch of the Department of Lands and Forests at Toronto has recently completed 150 hours' flying and is still running like a clock. Moths generally have been so successful in Canada that the De Havilland firm have received another order for forty of them.

RECORD BREAKERS.—Mr. and Mrs. A. S. Butler after breaking the World's Speed Record for Light Aeroplanes.
("Aeroplane" photograph.)

World's light aeroplane **Speed Record**

119.84 m.p.h.

(Subject to official confirmation.)

by

Gipsy Moth Aeroplane

on

Pratts

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TRADE MARK

Distributed by the Proprietors of PRATTS SPIRIT—famous for 30 years.

D.A. 306

THE FRENCH AIR ESTIMATES.

According to *The Times* the estimates of the new French Air Ministry were passed on Dec. 9 without any important alteration. The credits asked for amount to 1,838,328,270 francs (nearly £15,000,000).

M. Laurent-Eynac, the Air Minister, told the Chamber that it was a mistake to suppose that his Ministry had been formed as a direct result of the impression produced by the death of the late Minister of Commerce, M. Bokanowski, in an air accident. Its creation was the outcome of plans which had been gradually matured over several years. It had been intended at first to form only an Under-Secretariat, but he had declined to be subordinate to the Ministers of War, Marine, and Colonies, and had insisted on an autonomous department.

The programme which he proposed would be first and foremost a programme of re-equipment. French air lines were already extensive, but they suffered from the lack of up-to-date material. To obtain this a coherent programme of research and construction was necessary. Quality, not quantity, must be their aim, and they must concentrate rather on producing satisfactory types of aircraft than on piling up large stocks of machines.

The technical and industrial departments would be the foundations of the new Ministry. When research had been revived, by the increase of the credits allocated to it from 65,000,000 to 150,000,000 francs, efforts would be made to simplify and standardise machines and to obtain steady and uniform production. To get lower costs and higher quality, the present 35 aircraft-building companies would have to be amalgamated in a few large concerns, each dealing with special requirements. Greater efforts must also be made to centralise and co-ordinate training, and to give greater safety to pilots.

M. Laurent-Eynac concluded by saying that he expected difficulties and opposition, but that he would count on the support of Parliament for the general welfare as against private interests.

SIDELIGHTS ON AMERICAN AVIATION.

An examination of the apparently trivial frequently illuminates the essential, and so, perhaps, the following remark gleaned from the American Press, is of some value in that it indicates the ever-growing increase of Civil Aviation in that Continent.

A farmer in an obscure Iowa village has stated that he considers monoplanes to be superior to biplanes because his experience is that loafing bystanders *will* sit on the lower wings of biplanes "and whittle the struts."

Since the postage rate has been reduced to 5c. the amount of mail carried by air has increased to a remarkable extent. At Los Angeles, even on the day before the new service opened, half a million of the new stamps were sold to the general public and on Aug. 1 ten tons of mails (the postage value of which was $17,500) left Lansing, Michigan, for various towns in eighteen machines.

Ten years ago, the United States Post Office Department instituted a daily air mail between New York and Washington—a distance of 218 miles. From that nucleus the service has expanded to daily flying throughout the continent amounting to 25,000 miles. Machines cross the borders of 35 States and stop daily at 102 cities.

Authorities expect that early next year American mail-aircraft will fly more than 10,000,000 miles during the year.

Some idea of the extent of this air mail traffic may be gauged from the fact that one pilot (Mr. E. Hamilton Lee) has flown over 8,000 hours in the last 10 years on such service.

The Boeing Air Transport and The National Air Transport Companies maintain an air line between New York and San Francisco. The distance by railway is 3,143 miles, but that of the air line is 513 miles shorter, which is but another example of how air travel saves time, both by being able to ignore topographical barriers and by increased speed.—S. G.

A CANADIAN-AMERICAN MERGER.

A merger has been formed between the Reid Aircraft Co. of Montreal and the Curtiss Aeroplane and Motor Co. of New York, and a new company to be known as the Curtiss-Reid Aircraft Co. will be formed.

Two-thirds of the directorate of the new company will be Canadian subjects and the President and Secretary of the Curtiss Co. will join the Board.

The Reid Aircraft Co. was formed in 1928 by Mr. W. T. Reid to manufacture the Reid Rambler two-seat all-metal light aeroplane, fitted with the A.D.C. Cirrus engine.

Mr. W. T. Reid was formerly chief designer to the Bristol Aeroplane Co. Ltd. during Capt. F. S. Barnwell's absence in Australia, and latterly was chief designer to Canadian Vickers Ltd. of Montreal

While with the latter company he produced a number of aircraft of which the Vedette and Varuna, single and twin-engined flying-boats were the most successful. The Vedette was the first Canadian-designed-and-built aircraft, has given excellent service and has been the subject of several repeat orders from the Canadian Government.

The new company will provide a still further outlet for American aircraft designs and capital in Canada.

U.S. INTERESTS IN CANADA.

How strong are the aeronautical interests of the United States in Canada is shown by the various mergers and controlling investments of U.S. capital which have happened during the past year or so.

These include Fairchild Aviation Ltd. of Canada, which has decided to manufacture aircraft in addition to its survey and photographic work; Canadian Vickers Ltd., which has acquired the Fokker rights for Canada; the Canadian Wright Co., which holds the manufacturing and selling rights for Wright engines in the British Empire; and the Ottawa Car Manufacturing Co., which has a working arrangement with the Consolidated Aircraft Corpn. of Buffalo, N.Y., for the assembly and service of their products. To these must now be added the Curtiss-Reid merger mentioned elsewhere.

Though these all provide work and wages for British subjects, a goodly share of the profits goes to the United States. And so do certain sums for royalties or fees to directors and designers and so forth.

Against this we can only put up the arrangement between Armstrong-Siddeley Motors Ltd. with the Ottawa Car Mfg Co. Ltd. for the assembly of engines, and the formation of the De Havilland Aircraft of Canada Ltd. All the more honour to these firms for their enterprise.

NOTES FROM "AVIATION," U.S.A.

HONOLULU FLIERS GET TROPHY (WASHINGTON, D.C.).—Lieutenant Lester J. Maitland and Albert F. Hegenberger of the Army Air Corps, who made the non-stop flight from California to Honolulu in June, 1927, have been chosen to receive the Clarence H. Mackay trophy for the most meritorious flight made by Army officers during that year, it is announced by F. Trubee Davison, Assistant Secretary of War. [And well deserved too.—ED.]

PATRICIAN ATTAINS 151.3 M.P.H. (BRISTOL, PA.).—A speed of 151.3 m.p.h. is said to have been attained by the Patrician, Keystone's new 18 passenger plane, in recent tests over a measured course here. [That is the speed that is needed.—Since then the machine has been burnt on the ground.—ED.]

Two Weeks to Christmas.

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Some Suggestions.

	£	s.	d.
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THE OLD FLYING DAYS - -	1	5	0
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LEAVE ME WITH A SMILE. (Another book by the author of "War Birds.") - - - - -		7	6
THE ART OF FLYING - - -		5	6

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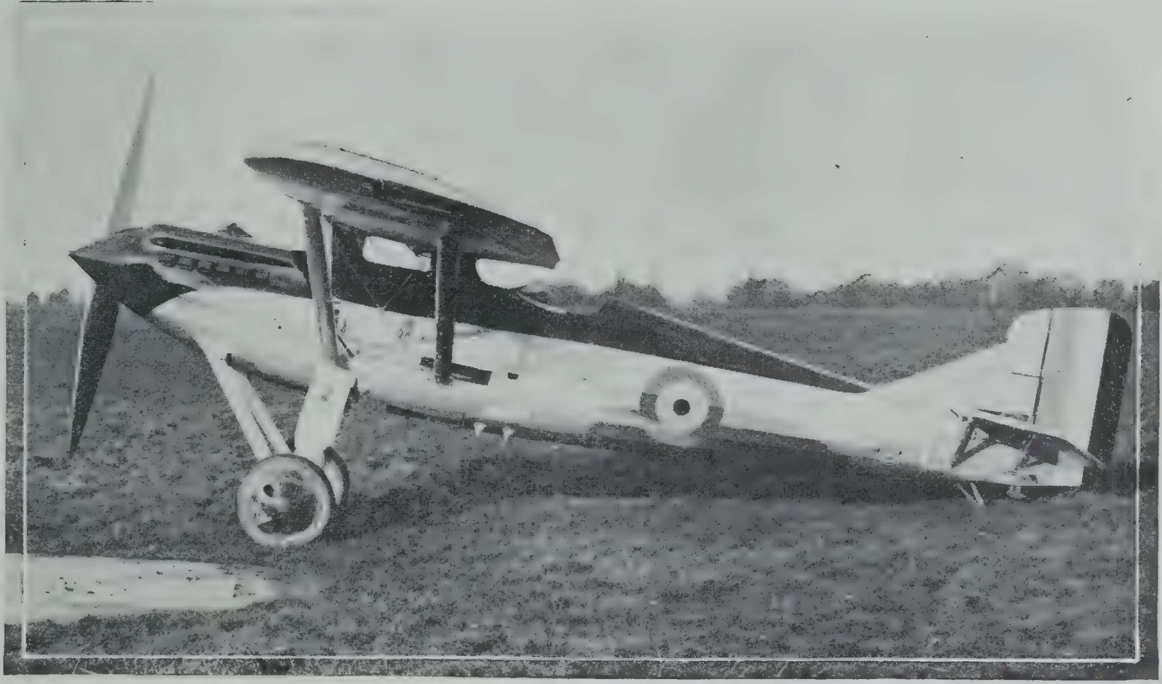
The
WESTLAND WIZARD



The Westland Wizard with Rolls-Royce F.XI Engine, is a high-speed single-seater fighter of the parasol monoplane type. Its exceptionally clean lines, with fuselage of very small cross-sectional area and neatly cowled engine, give it an extremely good performance, while the many service requirements, pilot's view, gun accessibility, arrangement of complete equipment, etc., have been fully borne in mind. In addition, the machine possesses excellent manœuvrability, stability and controllability.

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STAG LANE NOTES.

Still another specimen of World's Record has changed its nationality and arrived by air at Stag Lane. On Friday afternoon Mr. A. S. Butler, Chairman of the De Havilland Aircraft Co. Ltd., flying his own Gipsy-Moth (Gipsy engine) with Mrs. Butler as passenger covered a 100 km. closed circuit at an average speed of 192.864 km.p.h. (119.84 m.p.h.), thus, subject to homologation, setting up a new speed figure for two-seat light aeroplanes.

Although this speed is a fraction under one km.p.h. better than the previous record—a German one—the flight was a remarkably good one in the circumstances. Mr. Butler set out at 15.35 hrs. in very poor visibility and by the time he returned it was almost dark. Under more favourable conditions a much faster time would have been registered.

Eleven new Gipsy-Moths have gone forth into the World during the week. Four of these are for the Danish Royal Flying Corps and Royal Naval Air Service. Two others are for the Moth Aircraft Corporation in the U.S.A. and the remainder are for the Colonies. In addition to a Gipsy engine for each of these, two spare engines have been completed.

During the week aerodrome activities have been somewhat curtailed owing to fog and poor weather generally, but nevertheless much routine flying has been going on despite the lure of an unhealthy but cheerful atmosphere known as "fug," which is to be found in most aerodrome offices and club-rooms these chilly days.

Sir Sefton Brancker flew to Cardington in comfort on the Coupé-Moth piloted by Mr. Pike.

Mr. Broad in addition to test-flying has been doing some experimental inverted flying on Gipsy-Moth YK. This machine is very well known all over the country for its regular aerobatic performance and its painful colour scheme.

The School numbers among its pupils four Indian subjects and two Egyptians, who are being trained officially for their respective governments. Their progress is quite good, one of the former and both the latter having graduated onto D.H.9s (Jaguar).

A problem which must crop up occasionally at schools and clubs is of how to get a machine down to earth when the pilot wishes to stay aloft. At Stag Lane recently a pilot on a refresher course found the air so agreeably refreshing that he seemed very disinclined to "bring the boat in" on time with the result that the aerodrome and surroundings presented a lively picture of people running about, frantically waving their arms and doing all manner of odd things to lure the enthusiast to earth. When this proves of no avail it leaves the people on the ground feeling a sickening sense of their helplessness. They can only sit and wait and if it is a nice day, the delinquent up above is not the one who will get tired first.

Another problem akin to this which might arise as flying becomes more comfortable is of how to rouse a pilot should he fall into a gentle slumber on a warm afternoon with nothing to do but an hour or two's solo. On Mr. Broad's recent twenty-four hour endurance flight he was seen from another Moth and appeared at first sight to be asleep. He was in reality only reading a novel, but if he had been asleep, what could have been done? In both problems there is food for thought. The flippant might suggest the proverbial lemon as the solution, whilst the cynical might give the answer as being "in the infirmary," sooner or later!

News has come through from Baghdad concerning the Vicomte and Vicomtesse de Sibour, who are globe-flying at ease in their Gipsy-Moth. The Vicomte has been enjoying some gazelle hunting by air, which would seem to be quite good fun and not as unsporting as it might appear. The gazelle being the swiftest and most graceful living thing on the desert (with due respects to the R.A.F.) a Moth is not an unfair match. In fact the gazelle has the laugh when it comes to changing direction quickly.

In this respect the sporting gun which the Vicomte would carry is the compensating factor and like most other sports it becomes a battle of wits. The Vicomte on returning from one trip had two very fine specimens in his locker which were so weighty that they caused him to land a little heavily, but happily without any damage to the machine.—C. A. S.

FLYING SCHOOLS.

The Brooklands School of Flying.

[Sec.: H. S. Hamilton, Brooklands Aerodrome, Byfleet.]

Report for week ending Dec. 9.

Instructor: Capt. E. A. Jones. *Ground Engineers*: W. S. Hellon, W. A. Watts. *Aircraft*: 2 (WJ and VE).

Flying Time: 13 hr.; *Instruction*: 12 (9 hr.); *Soloists*: 2 (3 hr. 10 min.

Notes.—We welcome the following new pupils—Messrs. A. V. C. Douglas, W. L. Mummery, L. R. Nienwenhuizer.

The School machines helped to further the cause of the British Film Industry on Saturday morning, taking off in formation and other manœuvres, which proved very successful.

Nothing daunting, pupils have turned out in great forces for much aviation despite the cold and frosty mornings this week.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]

Aerodrome: Stag Lane Aerodrome, Edgware, Middlesex.

Report for week ending Dec. 9.

Instructors: V. H. Baker, M.C., A.F.C., F. R. Matthews. *Ground Engineer*: C. Humphreys. *Aircraft*: 2 (MP and XS)

Flying Time: 22 hr. 55 min.; *Instruction*: 16 (11 hr. 5 min.); *Soloists*: 13 (11 hr. 50 min.).

Notes.—Mr. J. M. Gittins completed his cross-country flights and altitude test for his "B" Licence.

Christmas Closing.—Members are notified that the Club will close down for the Christmas holidays on Sunday evening, Dec. 23, and re-open on Tuesday, Jan. 1.

Flying Time for the Month of November.

Total: 305 flights (110 hr. 45 min.); *Instruction*: 125 flights (52 hr. 5 min.); *Soloists*: 114 flights (46 hr. 50 min.); *Passengers*: 10 flights (3 hr. 30 min.); *Tests*: 56 flights (8 hr. 20 min.).

The Lancashire Aero Club.

[Sec.: F. W. Atherton, Woodford, Cheshire.]

Report for week ending Dec. 8.

Chief Instructor: D. E. Hall. *Voluntary Asst. Instructors*: J. C. Cantrill and J. J. Scholes. *Ground Engineers*: Bartram and Chapman. *Aircraft*: 4 (XD, PH, QL, MQ).

Flying Time: 21 hr. 35 min.; *Instruction*: 9 (5 hr. 5 min.); *Soloists (under instruction)*: 2 (1 hr.); *"A" Pilots*: 7 (1 hr. 30 min.); *Passengers*: 13 (10 hr. 55 min.; *Tests*: 2 hr. 5 min.

Notes.—At last we have got all our machines in commission once more. The new undercarriage on the Avian QL is most satisfactory and the Chief Instructor reports that he can now almost go to sleep while giving landing practice.

The week's flying has been chiefly remarkable for the number of cross-country flights and the number of forced landings. While the weather has on the whole been good there has been a nasty haze which made it very easy to lose the aerodrome. On one day Mr. Lacayo and Mr. Kay both lost themselves within a few miles of it. Mr. Lacayo returned in safety after landing at Knutsford to inquire the way. Mr. Kay flew for an hour and finally landed near Shrewsbury, some seventy miles away. The machine was brought back by Mr. Hall the following day. Mr. Gort, on a cross-country to Hooton, lost himself but managed to get down safely at Sealand. Mr. Cantrill lost his prop through stalling at 1,200 ft. and owing to the bitter cold was unable to restart it by diving. He made a safe landing about a mile from the aerodrome. He was very cross because the staff did not come to his assistance for about an hour and the position was not improved by the explanation that as he had a charming lady passenger on board they thought there was no hurry.

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Dec. 8.

Instructor: G. R. Beck. *Ground Engineer*: R. Morris. *Aircraft*: 3 (TB, SV and RF).

Flying Time: 16 hr.; *Instruction*: 6 (3 hr. 30 min.); *"A" Pilots*: 6 (11 hr. 55 min.); *Passengers*: 2 (20 min.); *Tests*: 3 (15 min.).

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending Dec. 9.

No flying has been possible on Club machines as none has yet been restored to service, but several members have had instruction on the Renault-Avro belonging to Pleasure Flying Services. It was hoped that IX would have been ready to-day, but it will be ready for service on Monday, and PT is expected to be on service on Wednesday.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]

Aerodrome: Castle Bromwich, Birmingham.

Report for week ending Dec. 8.

Instructors: Flt. Lt. T. Rose, D.F.C., and W. H. Sutcliffe. *Engineer*: W. J. Halland. *Asst. Engineer*: G. Rees. *Aircraft*: 1 (LT).

Flying Time: 16 hr. 5 min.; *Instruction*: 11 (5 hr.); *Soloists*: 9 (9 hr. 50 min.); *Passengers*: 3 (50 min.); *Tests*: 25 min.

Notes.—On Monday Mr. C. W. R. Gleeson made his first solo and on Saturday passed for his "A" Licence.

Mr. M. C. Wilks also successfully did the flying tests.

All the flying this week has been done on LT. XT has been out of commission for change of engine, and LW is having her annual overhaul.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, The Hampshire Aeroplane Club, Hamble.]

Aerodrome: Southampton Aerodrome, Hamble.

Report for week ending Nov. 30.

Instructors: Flt. Lt. F. A. Swoffer, M.B.E., and W. H. Dudley. *Ground Engineers*: E. Lenny and J. Elliott. *Aircraft*: 2 (OI and OH).

Flying Time: 12 hr. 35 min.; *Instruction*: 11 (6 hr. 45 min.); *Soloists*: 2 (2 hr. 25 min.); *"A" Pilots*: 4 (2 hr. 45 min.); *Tests*: 5 (40 min.).

Notes.—On Wednesday last we were flying for the first time for 8 days, our inactivity being solely due to bad weather.

Flt. Lt. Swoffer is away at present doing his annual training and so all instructional work falls on Mr. Dudley.

On Wednesday last Sir Alan Cobham visited Bournemouth and he was met by members of the Committee of our Bournemouth Branch, who entertained him to lunch and generally took charge of affairs.

Flying time for month of November: 102 hr. 25 min.; *Instruction*: 64 hr.; *Soloists*: 12 hr.; *"A" Pilots*: 20 hr.; *Instructors' Solo*: 6 hr. 25 min.; *Passengers*: 1 hr. 30 min.

Report for week ending Dec. 7.

Instructors: Flt. Lt. F. A. Swoffer, M.B.E., and W. H. Dudley. *Ground Engineers*: E. Lenny and J. Elliott. *Aircraft*: 2 (OI and OH).

Flying Time: 8 hr. 40 min.; *Instruction*: 9 (4 hr. 30 min.); *"A" Pilots*: 7 (3 hr. 5 min.); *Tests*: 5 (1 hr. 5 min.).

Notes.—The chief item of interest to report this week is the first Annual Dinner of our Bournemouth Branch, which was held at the Royal Bath Hotel, Bournemouth, on Monday last. Sir Sefton Brancker,

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Sir James Hosker, the Mayor of Bournemouth and Alderman Thwaites were among the distinguished visitors present. It is gratifying to look back upon the progress made by our Bournemouth Branch since its inception in the spring of this year. The sending over of a machine once or twice a week has promoted such keenness that it is confidently expected that next year an aeroplane and an Instructor will be permanently installed. Mr. Grahame Gibbs and his Committee have done a tremendous amount of spade work and they hope before long to acquire an aerodrome of their own.

We were particularly pleased to see our indefatigable D.C.A. at the Dinner, the more so as he had to be in Canterbury the following morning for the enthronement of the Archbishop, and the weather was too foggy for flying. Not to be outdone, one of the Bournemouth members, Mr. H. S. Knight, placed his car at Sir Sefton Brancker's disposal and drove through the night, arriving at Canterbury at 7 a.m. He returned to Bournemouth at 7. p.m., having driven a distance of 347 miles without sleep and through a considerable amount of fog. We consider this not at all a bad show after a Club Dinner.

We regret to have to report the death in a Nursing Home of our oldest flying member, Mr. A. M. Reuther. He was over 70 years of age, but greatly preferred being in the air to the ground. Although living at Bournemouth he frequently made the arduous journey by train, tram and 'bus to Hamble, leaving home at 7 a.m. so that he might fly in the weekly machine leaving Hamble for Bournemouth. His keenness might well be emulated by a host of younger men.

The Norfolk and Norwich Aero Club.

[Sec.: G. McEwen, The Aerodrome, Sprowston, Norwich.]

Report for week ending Dec. 9.

Instructor: B. Young. *Ground Engineer*: A. Kirkby. *Aircraft*: 2 (ZW and QX).

Flying Time: 12 hr. 55 min.; *Instruction*: 6 (5 hr. 5 min.); *Soloists*: 2 (4 hr. 15 min.); *"A" Pilots*: 8 (3 hr. 30 min.); *Tests*: 5 min.

Notes.—Much better weather of a bright, frosty nature has brought the pilots out, although a little ground mist has been troublesome at times. It is more cheering to do a bit of flying for a change after sitting around for the last week or two.

On and from Monday, Dec. 17, until Tuesday, Jan. 1, the Club will be closed down for staff Xmas Holidays.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. L. Holmes, D.S.C., The Aerodrome, Hadleigh, Suffolk.]

Aerodromes: Hadleigh, 2 miles E. from Hadleigh, Suffolk, and Conington, 8 miles W.NW. from Cambridge.

Report for week ending Dec. 8.

Instructor: G. E. Lowdell, A.F.M. *Ground Engineers*: "A and C," J. Shearman; "C," E. Mayhew; "A," G. Keeley. *Aircraft*: 3 (RE, SZ and UH).

Flying Time: 14 hr. 20 min.; *Instruction*: 6 (8 hr. 30 min.); *Soloists (under instruction)*: 3 (1 hr. 10 min.); *"A" and "B" Pilots*: 5 (4 hr. 5 min.); *Passengers*: 1 (5 min.); *Tests*: 8 (40 min.).

Notes.—Dr. Dunn and Mr. Colingwood made successful first solos during the week.

Mr. Schofield flew over to Norwich and Dr. Sleigh answered a call to render first aid after a motor accident by flying over to the scene, thus saving about 20 minutes.

The week has been somewhat marred by fog, with the result that there was no instruction at Cambridge and consequently no Ipswich—Cambridge airway.

We deeply regret the loss of Mr. F. Verney, an "A" Licence pilot and one of our most popular and keenest members, who died suddenly on Friday. He had an accident playing Rugger some weeks ago and had been laid up with a broken ankle. We desire to express our deepest sympathy with his relatives in a loss which we also feel keenly.

Mr. E. Mayhew, our "C" Licence ground engineer, retired to bed with 'flu on Saturday, but Mr. J. Shearman, the representative of the Blackburn Aeroplane Co. at Martlesham, came to our rescue.

The Liverpool and District Aero Club.

[Sec.: J. Ellis, Hooton Park Aerodrome, Wirral.]

Report for week ending Dec. 1.

Instructor: Flt. Lt. J. B. Allen. *Ground Engineer*: H. Pixton. *Aircraft*: 2 (WK and XX).

Flying Time: 8 hr.; *Instruction*: 13 (6 hr.); *Soloists*: 3 (45 min.); *"A" Pilots*: 4 (1 hr. 5 min.); *Passengers*: 1 (30 min.); *Tests*: 2 (10 min.).

Notes.—Gales and rain have again curtailed our flying.

To add to our troubles Mr. Pixton is laid up with a severe attack of 'flu and neuritis. We hope, however, to have him back to duty during the course of next week. We also regret to report that Flt. Lt. Allen is suffering from quinsey which will keep him on the sick list for a few days.

Mr. Jack Chapman, the Lancashire Club's Ground Engineer, who also holds an "A" Licence, very kindly came to our assistance, flying over to Hooton each morning when the weather was suitable with Mr. Bartram, Rigger, as passenger. After examining and signing out the machines they returned to Woodford.

On Saturday last some careless oaf mislaid the key of the "wine cellar" causing great inconvenience and a broken door.

Altogether a black week.

Report for week ending Dec. 8.

Instructors: Flt. J. B. Allen, Flt. Lt. Sullock (Hon. Instructor). *Ground Engineer*: Mr. B. R. Nutter is acting as Ground Engineer during Mr. Pixton's indisposition. *Aircraft*: 3 (WK, XX and XY).

Flying Time: 11 hr. 40 min.; *Instruction*: 18 (8 hr. 10 min.); *Soloists (under instruction)*: 4 (1 hr. 50 min.); *"A" Pilots*: 3 (1 hr.); *Passengers*: 1 (15 min.); *Tests*: 5 (25 min.).

Notes.—Mr. Sullock, who is kind enough to take a busman's holiday by acting as our Honorary Instructor, has given us every minute of his spare time whilst Flt. Lt. Allen has been ill, with the result that our flying time is excellent considering the unfavourable weather. We are pleased to report that Flt. Lt. Allen has now recovered and started work again on Saturday. Mr. Pixton is still on the sick list. We have been fortunate however in securing the services of Mr. Nutter as Ground Engineer.

Owing to the indisposition of Staff, the Club will be closed down until Dec. 27, with the exception of week-ends, when flying will take place with Mr. Sullock in charge. Saturdays 2 p.m. to dusk, Sundays 11 a.m. to dusk.

We really doubt whether Flt. Lt. Allen should have his sick leave, as he was so full of pep and vim on his return to work on Saturday that he quite swept Mr. Barber off his feet. He did this with the tail-plane of XX when turning round. Mr. Barber executed a graceful parabola and a tail-first landing, and Mr. Nutter skilfully repaired the leading edge of the plane on Sunday morning, incidentally demonstrating that "King Dick" spanners make quite efficient gluing-cramps.

We were delighted to read of Capt. Stack's latest distinction in the Lancashire Club's December "Elevator" and thank the Editor for making the matter (as Milton Hayes would say) quite clear!

The Southern Aero Club.

[Temp. Hon. Sec.: Miss N. B. Birkett, Shoreham Aerodrome.]

Report for week ending Dec. 9.

Aerodrome: Shoreham.

Flying has unfortunately been at a standstill during the past two weeks, owing to our dual Avro 504K, G-EBYB having been damaged by the recent gales. A particularly nasty gust carried away a section of roofing on a new hangar, dropping it onto the machine's top planes. However, she will be flying again this week.

In the meanwhile members have been spending plenty of time sampling our newest innovation,—a sandwich bar and buffet in the clubhouse. There, one can obtain anything from a cocktail—yes, we have a licence—to a complete luncheon or tea. Owner-pilots passing this way please note.

Vast improvements have taken place at the aerodrome, and new hangars and workshop accommodation are nearly completed.

The Bristol and Wessex Aeroplane Club.

[Sec.: Major G. S. Cooper, D.S.O., Filton Aerodrome, Glos.]

Telephone and Telegraphic address Filton 53.

Report for three weeks ending Dec. 8.

Instructor: E. B. W. Bartlett. *Ground Engineer*: A. W. Webb. *Aircraft*: 2 (TV and YH).

Flying Time: 29 hr. 55 min.; *Instruction*: 6 (10 hr. 45 min.); *Soloists (under instruction)*: 1 (1 hr. 55 min.); *"A" Pilots*: 9 (14 hr. 55 min.); *Passengers*: 4 (45 min.); *Tests*: 17 (1 hr. 35 min.).

Notes.—The beginning of December has been a little more cheerful, in spite of the mist and fog which have taken the place of the gales of last month. We unfortunately lost the services of our Instructor for a week while indisposed, but Mr. J. E. Tratman and Mr. E. V. Culverwell most kindly came to our assistance and enabled the Club to carry on during his absence, for which we are very grateful to them.

On Dec. 1 a Bristol footballer who had lost his train was taken to Cardiff and landed on the racecourse close to the ground in time for his game. On the 7th Mr. Hall flew to Southampton and back having rather an unpleasant experience with fog which he successfully negotiated near here on the return journey.

The Cinque Ports Flying Club.

[Hon. Sec.: R. Dallas Brett, 114, High Street, Hythe, Kent.]

Aerodrome: Lympne.

Report for week ending Dec. 8.

Instructor: H. G. Travers, D.S.C. *Ground Engineer*: R. H. Wynne. *Aircraft*: 1 (NN).

Flying Time: 14 hr. 10 min.; *Instruction*: 9 (6 hr. 30 min.); *Soloists (under instruction)*: 6 (7 hr. 15 min.); *"A" Pilots*: 1 (15 min.); *Tests*: 10 min.

Notes.—The weather was far better this week and flying took place every day.

On Dec. 3 Mr. Hamilton, R.A., who is doing a Course at the Small Arms School, Hythe, did his first solo in style, and was followed on Dec. 6 by Mr. Armstrong Payn of Deal, who also put up a good performance.

On Dec. 8 we were glad to receive a visit from Col. Strange in a Mark 3 Cirrus Spartan. The machine was examined with great interest by the members and appears to be a most ingenious and efficient design. We hope to see more of Col. Strange and the Spartan in the near future.

The Club will be open throughout the Christmas holiday, with the exception of Christmas Day, and it is hoped that members will take advantage of this opportunity to obtain their "A" Licences.

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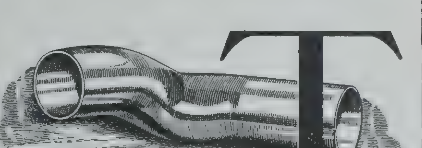

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The London Terminal Aerodrome.

ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 2; Monday, 8; Tuesday, 16; Wednesday, 8; Thursday, 16; Friday, 18; Saturday, 17.

IMPERIAL AIRWAYS LTD.:
London—Paris—Zurich; London—Ostend—Brussels—Cologne and return: Machines 34, passengers 157, freight 13 tons.

AIR UNION:
Paris—London and return: Machines 18, passengers 32, freight 12½ tons.

K.L.M.:
Amsterdam—Rotterdam—London and return: Machines 12, passengers 19, freight 4⅜ tons.

SABENA:
Brussels—London and return: Machines 10, passengers 6, freight 2 tons.

DEUTSCHE LUFTHANSA A.G.:
Amsterdam—London and return: Machines 16, passengers 6, freight 1 ton.

MISCELLANEOUS:
British machines 2, passengers 2.
Foreign machines 0, passengers 0.
Total number of trips by British Machines, 36, carrying 159 passengers. Foreign Machines, 49, carrying 63 passengers.

COMPARATIVE FIGURES.

Week ending Dec. 8:
Machines, 85; Passengers, 322; Crews, 168; Total personnel, 490.
Corresponding week, 1927:
Machines, 47; Passengers, 159; Crews, 81; Total personnel, 240.
Corresponding week, 1926:
Machines, 40; Passengers, 123; Crews, 47; Total personnel, 170.
Corresponding week, 1925:
Machines, 63; Passengers, 147; Crews, 71; Total personnel, 218.
Corresponding week, 1924:
Machines, 31; Passengers, 83; Crews, 37; Total personnel, 120.
Corresponding week, 1923:
Machines, 43; Passengers, 45; Crews, 73; Total personnel, 118.
Corresponding week, 1922:
Machines, 36; Passengers, 123; Crews, 70; Total personnel, 193.
Corresponding week, 1921:
Machines, 11; Passengers, 20; Crews, 19; Total personnel, 39.
Corresponding week, 1920:
Machines, 11; Passengers, 14; Crews, 12; Total personnel, 26.

AFRICAN AIR SERVICES.

In the House of Commons on Dec. 10 in reply to a question by Sir R. Thomas, the Secretary of State for Air said that the basis of an agreement had been reached between Imperial Airways Ltd. and Cobham-Blackburn Air Lines Ltd. for the operation of an African air route, but, pending the receipt of their proposal he was not in a position to make any further statement in the matter beyond saying that he hoped that a through African service would be found practicable.

THE ABOLITION OF "PORT."

Air Ministry *Notice to Airmen* No. 81 of Dec. 5, 1928, states:—

> As from the date of issue of this Notice, the terms "port" and "starboard" will cease to be used in relation to civil aircraft. These terms will be replaced respectively by the terms "left" and "right," which will be used in all cases.

"Thank God we've got a Navy!" And anyhow, there is a lot to be said for talking of port and starboard engines, to avoid confusion with left-hand and right-hand engines.

NEW WORLD'S RECORDS.

The Royal Aero Club has been notified by the *Fédération Aéronautique Internationale* that the following World's Records have been granted:—

Class B. Airships.

Distance: (Germany).—Dr. Eckener, Lakehurst, United States—Friedrichshafen, Germany, Oct. 29, 30, 31, Nov. 1, 1928, L.Z.127 *Graf Zeppelin* (five 450/550 h.p. Maybachs)—6,384.500 kms.

Class C. Aeroplanes.

Useful Load Transported. 2,000 *Kilograms.*

Speed over 100 *kms.*: (France).—Paillard and Camplan, Le Bourget—Gondreville, Nov. 23, 1928, Bernard 190 T. Monoplane (600 h.p. Hispano-Suiza)—223.546 kms.

Light Aeroplanes:—3rd Category. Single-Seater.
Weight empty from above 200 *Kilograms to* 350 *Kilograms inclusive.*

Distance in a Straight Line: (Czecho-Slovakia).—Capt. A. Vicherek, Prague-Bednodemjanovsk, Russia, Oct. 5, 1928, Avia Monoplane (60 h.p. Walter)—2,011 kms.

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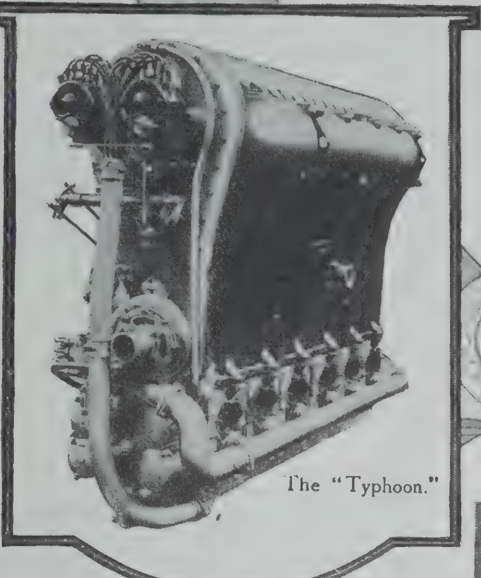

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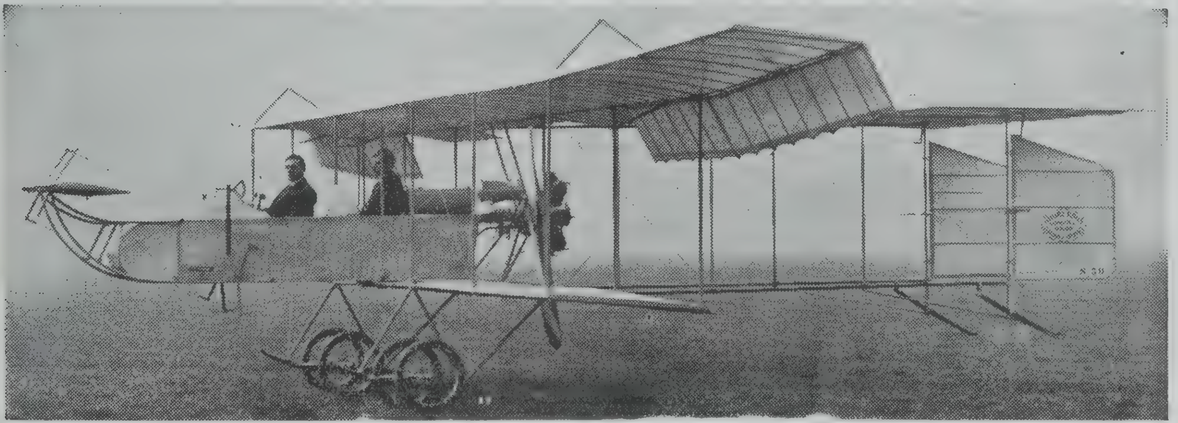

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figured in Army manoeuvres 1913 and saw Active Service during early part of the war. A machine of this type was one of the first aeroplanes to be fitted with a gun and another with wireless.

16 YEARS AGO. Messrs Short Bros. have always been famous for the design and efficiency of their Aircraft, and in 1912 the above machine was the latest product of the Eastchurch Factory. For the machines they constructed in those days they used as they still do

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planes; to manufacture, dispose of and exhibit all types of aircraft and aircraft engines, etc.

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Irish Airways Ltd.—Private company. Registered in Dublin, Nov. 30. Capital, £100 in £1 shares. Objects: To establish, maintain and work lines of aerial conveyances between such places in Ireland as may be from time to time selected by the company. The subscribers (each with one share) are: A. J. Browner, 28, Herbert Place, Dublin, solicitor's assistant. J. McBreen, 88, Grosvenor Square, Rathmines, Dublin, solicitor's assistant. Solicitors: Arthur Cox and Co., 40/43, Stephens Green, Dublin.

The Irish Aero Club Ltd.—Registered in Dublin, Nov. 26, as a company limited by guarantee. Objects: To take over and assume all or any of the assets, rights and liabilities of the Irish Aero Club, and to establish, maintain and conduct a club or clubs for the furtherance of Civil Navigation. The directors are: W. A. Armstrong, 8, Eaton Square, Monkstown, Co. Dublin, insurance broker. F. M. Summerfield, Cuil-na-Greina, Sutton, Co. Dublin, motor-car importer. Dr. O. St. J. Gogarty, 15, Ely Place, Dublin. Col. J. C. Fitzmaurice, Baldonnell Aerodrome, Co. Dublin. Col. C. F. Russell, 46, Frankfort Avenue, Rathgar, Dublin. O. G. Esmonde, 30, Upper Pembroke Street, Dublin. F. Fitzpatrick, Roebuck Mount, Dundrum, Co. Dublin, barrister. J. J. Reddy, 52, Dawson Street, Dublin, motor-car importer. M. P. Rowan, 51/52, Capel Street, Dublin, seed merchant (P.C.). M. McDunphy, 26, Haddon Road, Dublin, civil servant. Solicitors: Arthur Cox and Co., 42/3, Stephens Green, Dublin.

PERSONAL NOTICES.

Deaths.

BERRY.—On Dec. 6, at Luctons, Lee-on-Solent, Amy, the beloved wife of Harry Berry, R.A.F.

TOSTEVIN.—On Dec. 10, near Whittlesford, as the result of a collision in the air, F-S. Osmond Cecil Tostevin, R.A.F.

Marriage.

TUKE—MOLLER.—On Dec. 8, at Brompton Oratory, Lieut. S. C. Tuke, R.N. (Flg. Off., R.A.F.), son of the late Rear-Admiral and Mrs. Tuke, and Miss Marjorie Moller, daughter of the late Mr. and Mrs. W. H. Moller, of Tedney House, Clifton-on-Teme, Worcester.

Forthcoming Marriage.

EGGLESFIELD—HYLAND.—The engagement is announced between Mr. Laurence Alfred Egglesfield, R.A.F., only son of the late Mr. and Mrs. T. W. Egglesfield, of Beeston, Notts, and Joan Margaret, only daughter of the late Mr. John W. Hyland and of Mrs. Hyland, of "The Turret," Albany Park, Kingston-on-Thames.

Birth.

GILLEY.—On Dec. 7, at 27, Welbeck Street, W.1, to Kathleen (*née* Stocken), wife of Sq. Ldr. D. Gilley, R.A.F. (retd.)—a daughter.

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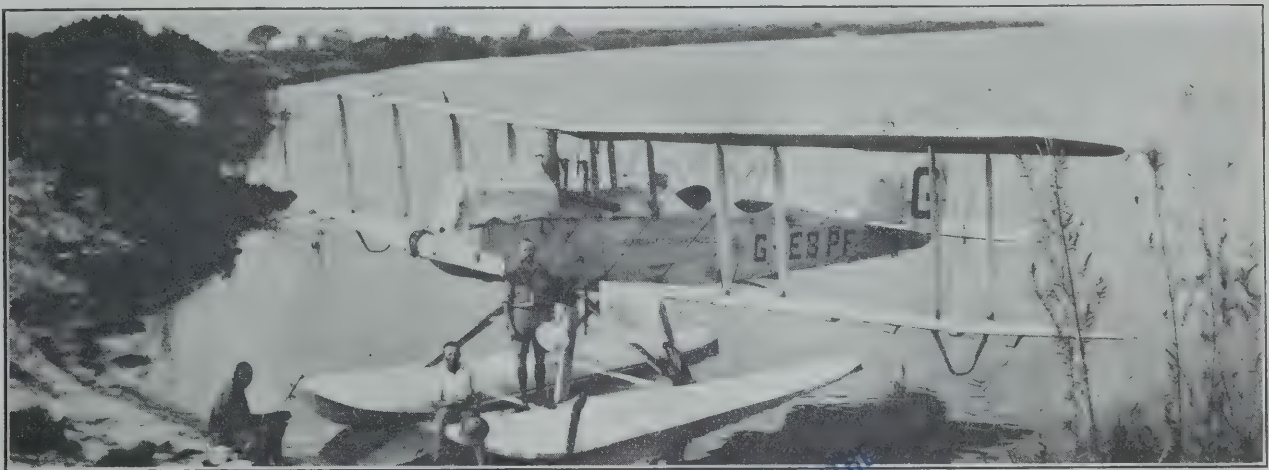
THE AEROPLANE

INCORPORATING AERONAUTICAL ENGINEERING

Edited by C. G. Grey

Vol. XXXV. No. 25. SIXPENCE WEEKLY. [Registered at the G.P.O. as a Newspaper.

"WE LIVE IN DEEDS NOT YEARS."
(P. J. Bailey)



ON THE ZAMBESI.—A D.H.9 (240 H.P. Siddeley "Puma" engine) belonging to the Aircraft Operating Co., Ltd., moored to the bank of one of the upper reaches of the Zambesi River some 400 miles from the nearest railway station.

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VOL. XXXV No. 25.

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ON TWENTY-FIVE YEARS OF FLYING.

We in England did not invent flying, so perhaps we may e excused from being so enthusiastic about the twenty-fifth nniversary of the first power-driven flight as are some of ur brethren in the United States. The phrase "some of ur brethren" is used advisedly, for there is in America uite a considerable faction in the aeronautical community who are no more enthusiastic about Mr. Orville Wright's rst flight on December 17, 1903, than we are in this country.

This faction claims that several people in the United tates, including the bright particular stars of the Smithonian Institute at Washington, knew a great deal more bout flying than did the Wright Brothers when they actu lly flew. And the opinion still persists that Professor Langley, now no longer with us, with Mr. Manley, and arious other of their associates, produced a practicable flyng machine, although the Wright Brothers' machine was he first to be launched off the ground.

We also might claim, if we wanted to do so, that Sir George Cayley in 1805 or thereabouts, knew quite as much bout flying as did either the Wright brothers or the Smithonian Institute about one hundred years later. The only nfortunate thing was that Sir George Cayley lived before he days of the petrol engine, and so, though he built, or t any rate was capable of building, a satisfactory glider, e never actually produced what American aviators at one ime used to call a gasoline kite. And the Henson-Stringellow monoplane did fly, as a model, eighty years ago.

Take it which way you will, there is no getting away rom the fact that on December 17, 1903, Mr. Orville Wright was launched into the air on a petrol-driven aeroplane and emained in the air for a distance of some 800 yards or so, nd thus acquired the right to be considered the pilot of the rst aeroplane which ever flew. Consequently anybody who wants to celebrate aeronautical anniversaries may just as well start dating them from December 17, 1903, as from any ther date, disputed or undisputed.

THE WAY OF THE PIONEER.

Mr. Orville Wright and his brother, the late Mr. Wilbur Wright, certainly deserve full credit for being the first people to start making the World airminded. They possessed aerobatic skill of a very high order. But their machine was one of those curious dead-end designs, such as crop up in all lines of invention, which perform their intended functions up to a certain point and thereafter cannot be developed any further.

The first steamships, the first railway locomotives, the first bicycles, Pennington's original motor-car and all sorts of other pioneer efforts belong in the same category. Their designs were such that, after they had shown that they could work, somebody else came along with other designs which embodied the same basic ideas and performed very much better.

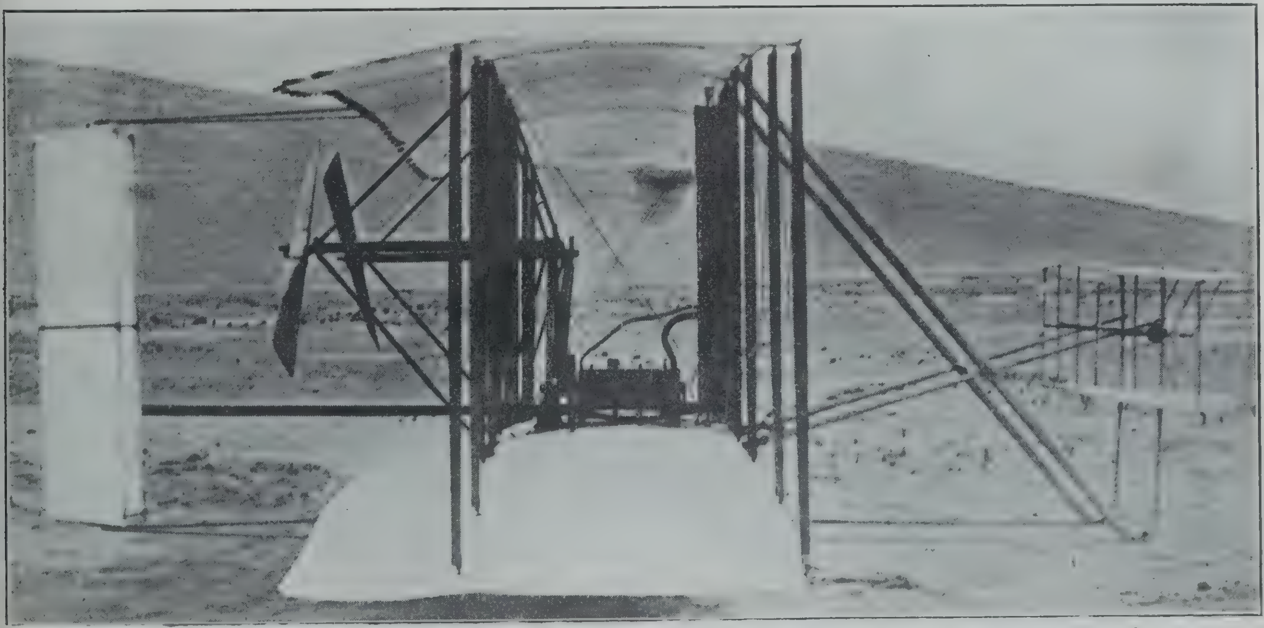
The fate of all pioneers is almost always the same. The very pluck and perseverance which makes a man reach the beginning of success in his pioneering seems to carry with it an inherent obstinacy which prevents him from scrapping his old ideas and starting out on a new line of development.

All newly-developed countries know the old man with a long white beard who lives in a shack on the top of a hill, looking at the valley below him full of intensive agriculture or seething with factories, and imagining that he has been robbed of his rights because somebody else followed him over the divide and developed the country which he discovered. He cannot recognise the fact that the obstinacy which bade him "Go and look beyond the ranges," when he could have made quite a good living at home, also forbade him to take the practical advice and financial help which might have made him a rich man, even though those who helped him might themselves have become richer.

The essence of the pioneering character is, as a rule, that it wants all or nothing. And most often it gets nothing.

There are pioners of aviation in England to whom this description applies. But happily here, as in America, there are also what might be described as second-wave pioneers who have succeeded.

After all, pioneering anything is very like attacking a position in war. The first wave of the attack is shot down or worn out before reaching its objective. The second wave may with luck capture the objective and consolidate its position.



THE FIRST MAN-CARRYING AEROPLANE.—The original Wright, most of which, plus renovations, is now on view in the Science Museum, South Kensington. The pilot lay prone on the lower plane, alongside the motor, which was a four-cylinder in-line, lying on its side.

Who shall say then who is the more meritorious, the man who makes the first attack and falls by the way, or profits little thereby, or the man who, having had the way shown to him, captures the position and then does work by which the whole World profits? Who is the greater man, he who made the first aeroplane fly at 30 m.p.hr., or he who a quarter of a century later makes one fly at 300 m.p.hr.? There is no doubt about who makes the most money.

The Wheel's Full Circle.

The curious thing about practically every mechanical development is that in its most primitive form it approaches so nearly to its ultimate form. Two examples may perhaps illustrate this statement.

Obviously the most primitive form of boat was a sharpened log on which a man sat astride and paddled. Then he hollowed out the log and sat inside it. Thereafter came built-up boats, starting with the coracle made of wicker-work and skins. And so we proceeded through all the elaboration of Roman galleys and the long-ships of the Norsemen, through the Elizabethian galleons and the full-rigged clippers to the combined steam-and-sail paddle boats, and the great steamships of to-day. And our last-of-all development is the submarine, which is to all intents and purposes a pointed steel log with everything inside.

Or to take an even simpler illustration, in that living men have seen the beginning and ultimate development of it,—the common or road-side bicycle. It began with the hobby-horse,—two wheels of equal size connected by a backbone on which a man sat astride and paddled himself with his feet on the ground. From it developed the pedal-driven bone-shaker with wooden wheels and iron tyres.

Then came the high bicycle with steel wheels and rubber tyres. All kinds of variants followed until it came back to the two equal wheels driven by pedals and a chain. And now we have a gasoline motor in it and the whole thing is so close to the ground that it looks more than ever like the original hobby horse.

Applying this doctrine to the aeroplane, without posing in any way as a prophet, we find that the most primitive ideas of aeroplanes, namely the original experimental gliders, were nearly all monoplanes—and, if one recollects rightly, some of them were cantilevers, or as near as they could be. When the motor-driven aeroplane came along w produced all kinds of elaborations such as the Voisin an Farman box-kites. And so we came to the braced biplan and we are coming more and more to the streamlined, cant lever monoplane.

The Canard Type.

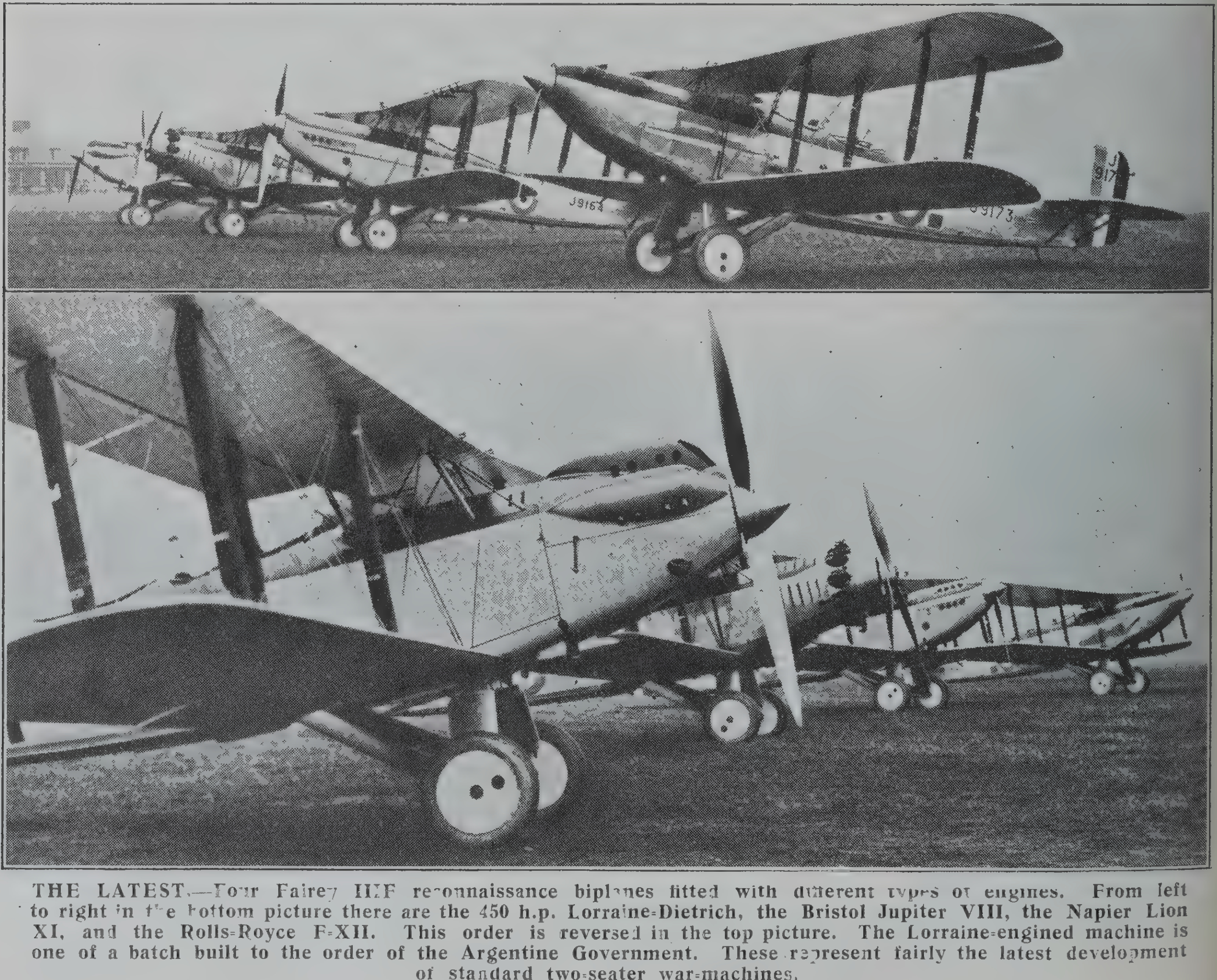
In those early days quite a number of people tried to de velop a type with an elevator extended on booms in fro This type came to be known as the "tail-first" type, simpl because the elevators were in front instead of behind. An in France it was called the *Canard,* because the extende front booms made it look rather like a duck. The lack o success of the type seemed later on to justify the titl *canard* in the other French meaning of the word.

The chief feature about the canard type was that it ha excellent stability fore and aft. But unfortunately nobod ever succeeded in making it stable in any other direction Nevertheless there are to-day high-browed scientists wh believe, and are prepared to prove mathematically, tha the canard type is the type of the future, especially in ver big machines. Apparently among these is Professor Junkers whose colossal flying-boat with thousands of horse-power an dozens of engines is to be more or less of this type.

Whether these scientific calculations are right or not, th fact remains that the early canard types were a complet wash-out. The original Wright machine was one of them Wilbur and Orville Wright, being born aerobatic artists were able to fly it. Perhaps a dozen men altogether in th rest of the World managed to fly the type, but it killed a unpermissibly high percentage of its pilots and those wh were not killed very soon took to flying other types.

The Wright Brothers compromised with popular opinio by putting a tail on their machine in addition to the front elevators. Then they gave up the front elevators and kept the tail behind. But by that time other people had gone far beyond them in the design and construction of aircraft and so, although flying in the rest of the World only began in 1909, the Wright aeroplane was a back number by 1912 The second-wave pioneers had left it behind in three years.

Of all the other tail-first or canard types, the only one which even approached success was that built by the late S. F. Cody, who disputes with Mr. A. V. Roe the honour of



THE LATEST.—Four Fairey IIIF reconnaissance biplanes fitted with different types of engines. From left to right in the bottom picture there are the 450 h.p. Lorraine-Dietrich, the Bristol Jupiter VIII, the Napier Lion XI, and the Rolls-Royce F-XII. This order is reversed in the top picture. The Lorraine-engined machine is one of a batch built to the order of the Argentine Government. These represent fairly the latest development of standard two-seater war-machines.

Where Britain Leads!

SPEED

THE fastest speed ever achieved was established on Nov. 4, 1928, by Flight-Lieut. D. D'Arcy Greig, D.F.C., A.F.C., R.A.F., flying a British built Supermarine-Napier seaplane, fitted with a Napier aero engine. His speed over 3 kilometres averaged

319.57 m.p.h.

RELIABILITY

THE greatest formation flight ever accomplished was carried out by four Supermarine-Napier flying boats of the Royal Air Force. These machines, each fitted with two Napier aero engines, flew from England to Australia round Australia and back to Singapore, covering

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without mechanical trouble. During the whole flight the machines flew in formation and kept to a prearranged programme throughout.

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being the first person to fly in England. Like the Wright machine, his was almost impossible to fly. Bleriot and Voisin both tried the canard type and quickly gave it up. Recently the Focke-Wolfe concern in Germany built a canard machine and Herr Focke killed himself on it.

The Patent Litigation.

One thing which did much to make the Wrights unpopular in the early days of flying was the legal action taken against other aircraft manufacturers who were said to have infringed the Wright patent. One believes that these proceedings were not taken by the Wright brothers themselves but by certain financiers in the United States who bought the Wright patent under the impression that it was valid.

To describe precisely what constituted the Wright patent would take up much room and would probably be of little interest to the majority of modern aviators. Apparently it consisted in coupling the rudder control to the wing control, which control was achieved by warping the wings as ailerons had not then been invented. In this way when the wing-tip on one side was pulled down and caused a drag on that side of the machine, the rudder was pulled in the opposite direction and so tended to counteract that drag.

When aeroplanes were produced with the kind of control which everybody uses in these days the claim was made that as the rudder had to be used to counteract the drag of the wing-tip or aileron, this constituted an infringement of the Wright patent. Considering that the coupling between the wing control and the rudder control was the pilot himself and not any kind of mechanical connection, this claim always struck one as being far-fetched.

But it was upheld in the United States Courts against the Curtiss Company, who at that time were making much more rapid progress than were the people who were running the Wright machines, and these legal actions not only wasted a lot of money which might have been used in speeding up progress, but it definitely hindered the good work of the Curtiss Co. Also the fear of legal action prevented a number of other people in the States from spending money on building and experimenting with aeroplanes.

In this way, even though indirectly, the very people who had conferred a benefit on the World by being the first to get off the ground and to show that flying was possible, hindered progress by delaying the work of other men who ultimately proved themselves to be better designers and constructors of aircraft.

One does not dispute that the Wright patent was a valid patent as far as it went. But one still holds, as one said continually in print at the time, that the Wright patent did not cover the claims which were made for it. And in that way one considers that the policy of the owners of the Wright patent was not merely dog-in-the-manger, but was actually foolish and short-sighted in their own interests.

Anyhow, considering it in the light of the money which has been made out of aeroplanes, entirely free from the incubus of the Wright patent, nobody ever made any money worth while out of the Wright patent, and those who tried to profit by it got just what they deserved.

Wright Ideas.

There were, however, certain facts about the original Wright machine which, as the wheel comes full circle, may be revived, though their mechanism must necessarily be entirely different.

The first interesting fact is that the World's first flight was made by an aeroplane launched from a rail. The time may come, and quite soon, when every self-respecting aerodrome will have a catapult from which to launch aeroplanes of certain standard types. Such a development is nothing like so unlikely as would have seemed some few years ago the infection of the English country-side with petrol-pumps.

Practically all the smaller Service aircraft in America and a good many in this country have to be designed in these days to stand catapulting from ships. And one is quite certain that in the next war portable catapults will be used for land machines. So we may very well have orientable catapults on turn-tables at our aerodromes.

Another interesting thing about the original Wright machine is that it was driven by pusher air-screws very much geared-down from the engine. Also the screws were out on the wings with the engine in the middle of the machine.

If anybody can produce a decent drive for airscrews or can manage to balance a machine so as to get two or more independent engines driving pusher-screws out on the wings, we shall have made quite a good deal of progress towards efficiency and comfort.

Another interesting point is that the early Wright machines had no wheels. They started off a catapult carriage and landed on skids. There are good practical engineers who consider to-day that by this time we ought to have dropped wheels and have taken to some form of caterpillar landing carriage.

Perhaps twenty-five years hence those of us who survive may be holding another celebration to recognise the fact that fifty years previously the Wright brothers produced pusher-screws and a sensible starting and landing mechanism. And when we do, their claims will have just about as much justification as some of the claims which are made to-day for the Wright brothers.

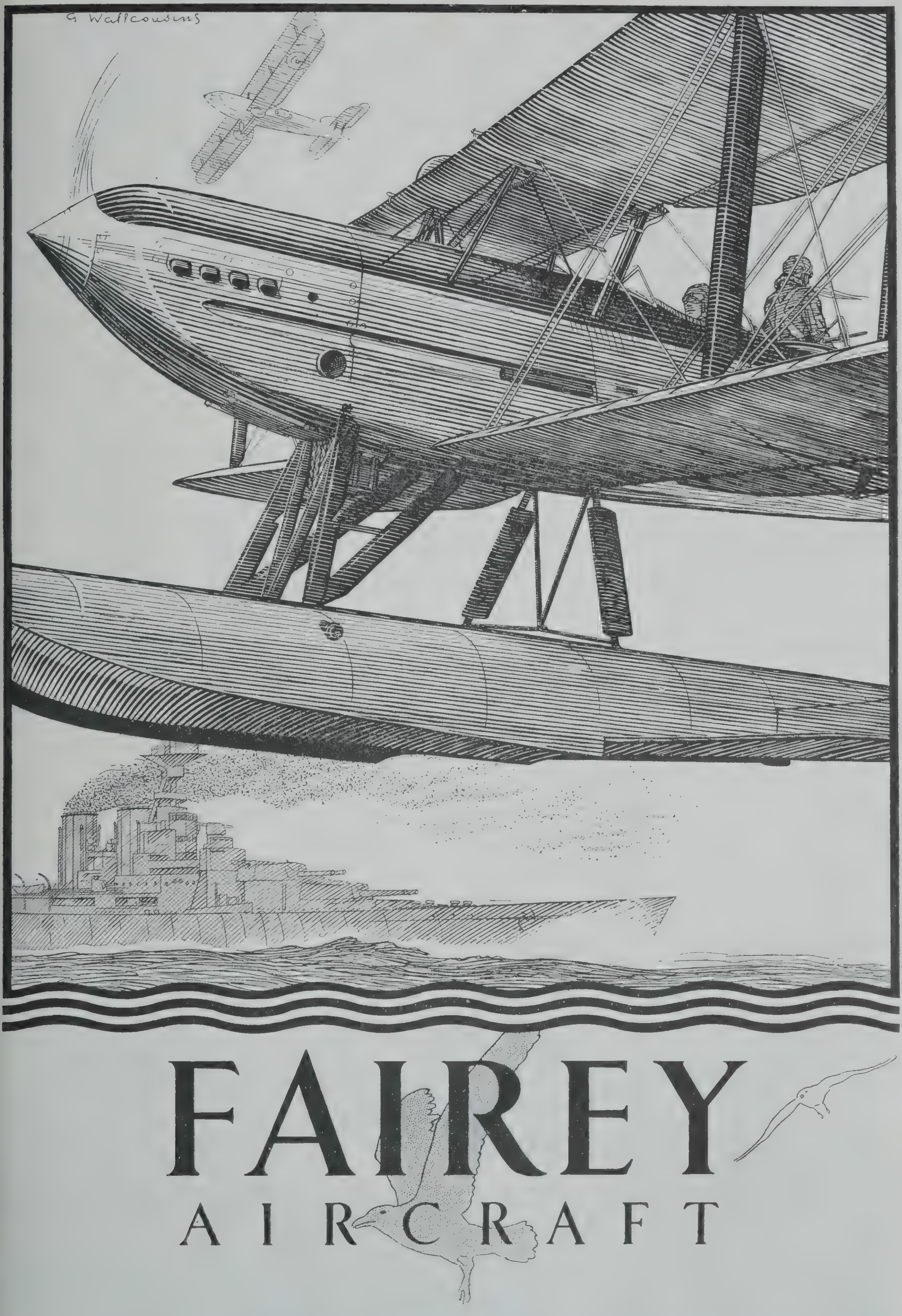
Nevertheless, the fact remains that twenty-five years ago the first human flight was made. And so aviating people all over the World are justified in celebrating the fact that the first man who flew is still alive and well twenty-five years afterwards.

That certainly is cause for jubilation. Long may he live and may his remaining days be happy, free from the turmoil which might have been his if the original humble invention of the Wright Brothers had become Big Business.—C. G. G.

THE JUBILEE CELEBRATION.

On December 17, being the twenty-fifth anniversary of the first flight ever made by man in a power-driven aeroplane, the Royal Aeronautical Society held a commemoration dinner in the Science Museum at South Kensington by courtesy of Colonel Sir Henry Lyons, Director of the Science Museum. The tables were laid underneath the reconstructed Wright

THE LATEST SINGLE-SEAT FIGHTER.—A Gloster Gamecock II (Bristol Jupiter engine) built for the Finnish Government.—(*"Aeroplane" photograph.*)



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machine which was lent to the Museum by Mr. Orville Wright after he had taken it away from the Smithsonian Institute.

After dinner, Colonel the Master of Sempill, who presided with his usual tact and ability, read cables from Mr. Orville Wright, from the Hon. W. P. McCracken, Jnr., Assistant Secretary of Commerce for Aviation in the U.S.A. (at the International Conference now being held at Washington), from M. Paul Tissandier (one of Wilbur Wright's first pupils in France), from the German Scientific Society for Air Navigation (in memory of Lilienthal to whom Wilbur Wright owed much of his early knowledge of aeronautics) and from the Aero Clubs of Japan, Italy and Belgium.

Colonel Sempill, introducing Mr. Griffith Brewer, who was to give a discourse on the Wright Brothers' work, said that Mr. Brewer began ballooning in 1891 and then joined the Aeronautical Society. He held Balloon Certificate No. 5, of 1906. He was the first Englishman to fly,—as a passenger with Wilbur Wright in France in 1908. Since then he had visited the Wrights every year. And he had sat on the Council of the R.Ae.S. ever since. Also he was Secretary of the Wilbur Wright Memorial Fund. In 1914 he took his aeroplane pilot's certificate in America as a pupil of Orville Wright. It was owing to him that the Wright machine had come to England.

Mr. Griffith Brewer said that he was overwhelmed by the honour of being allowed to explain the early work of the Wrights. Thirty-seven years ago when ballooning with one of the Spencer brothers he landed at Baldwin's Park and saw the machine which Hiram Maxim was building there.

The Wright Brothers became interested in flying after Lilienthal and Pilcher were killed. They were surprised that so many able people had given up experiments with flying after going so far. They wrote to the U.S. Weather Bureau to find out where the strongest winds were to be found and decided to experiment there, on the coast of Virginia, with gliders, because they were cheaper to repair than power-driven machines. In this they followed the lead of Lilienthal and Chanute rather than Maxim.

Their first departure from what they had read in books was the use of warping wings. Previously pilots tried to balance their machines by moving their bodies.

In their first experiments they found that their glider would not carry a pilot, so they flew it as a kite, working the wings with cords from the ground. Wilbur Wright had said that there were two ways of learning to ride a horse, one was to sit on a fence and watch what a horse did, the other way was to get on his back. The first way taught a lot, but the second way turned out the best riders. So the Wrights decided that they must learn to fly on their machines.

Mr. Brewer then described a number of their experiments, including the building of an experimental wind tunnel and their gliding at Kitty Hawk,—where they made a thousand glides. Thereafter they built their own motor and propellers,—which were 66% efficient. When the machine was ready to fly, Orville Wright won the toss and so had the privilege of making the first flight which lasted 59 seconds. Wilbur Wright flew it the same day.

Soon afterwards it was wrecked by a gust of wind. It was then packed and taken home to Dayton. There they built other machines, and the original machine remained in a packing case until it was drowned in the great Dayton floods some years later. Subsequently it was taken out of its case and re-covered with fabric from the same mill which supplied the original fabric, and actually stitched with the old sewing-machine used for the first covering.

Here one may remark that the machine in its reconstructed form was exhibited in a tent at the U.S. Air Races at Dayton in 1924. Thereafter it was sent to the Smithsonian Institute, but owing to a revival of the Langley-Wright dispute, Mr. Orville Wright took it away from the Smithsonian and lent it to South Kensington.

After Mr. Brewer's very interesting address Colonel Sempill presented the various awards made by the Council of the R.Ae.S. during the year.

Presenting the Wakefield Medal, Colonel Sempill said that without Sir Charles Wakefield we should have had no Imperial flights, no Sir Alan Cobham, and no Lady Cobham. Last year the medal had been awarded to Mr. M. L. Bramson for his anti-stall gear. This year it was awarded to Mr. Handley Page, long a staunch supporter of the Society, for his development of slot control.

The Simms Gold Medal was awarded to Capt. F. Entwistle of the Meteorological Department of the Air Ministry for his work on the study of fogs.

The Taylor Gold Medal had been awarded to Mr. Rex Pierson of Vickers Ltd. who was now in America.

The Silver Medal of the R.Ae.S. was awarded to Mr. Wallis, the designer of R100, and in his absence it was handed to Air Commodore Masterman, R.A.F.

The R38 Memorial prize was presented to Mr. H. Roxbee Cox for his work on the external forces on rigid airships.

Lieut.-Col. Moore Brabazon, M.P., proposing the Guests, spoke movingly, and unusually seriously, on this World celebration. He asked what the next twenty-five years of aviation was to be, and whether aircraft were merely to be instruments of destruction? He emphasised the fact that no nation needed aircraft so much as our Empire.

Sir Richard Glazebrook, Chairman of the Aeronautical Research Committee, replied.

Colonel Sir Henry Lyons, returning thanks to Col. Sempill, said that Mr. M. J. Davy, of the Science Museum, was primarily responsible for having the Wright machine at South Kensington, for he had suggested in 1923 that Mr. Orville Wright be asked to let us have a copy of the machine. Instead of the copy we now had the machine itself.

Mr. C. R. Fairey proposing the health of Col. Sempill said that we were assembled to do honour to the Wright brothers and other pioneers. He said we should also do honour to our Chairman, who had referred to the modesty of pioneers and had modestly refrained from any reference to his own good work. The R.Ae.S. owed much to Colonel Sempill's energy.

Mr. Fairey then drew attention to the fact that over eighty years ago an Englishman named Stringfellow designed a model which flew, and solved more than half the problems of the conquest of the air. That model could be seen a few yards from where they then sat. He said emphatically that if Stringfellow had had a motor of sufficient power we should now be celebrating not the twenty-fifth anniversary of the first flight but about the eightieth anniversary. He ended by expressing the hope that Colonel Sempill will long continue his good work for aeronautics.—C. G. G.

AN ANTE-DATED AWARD.

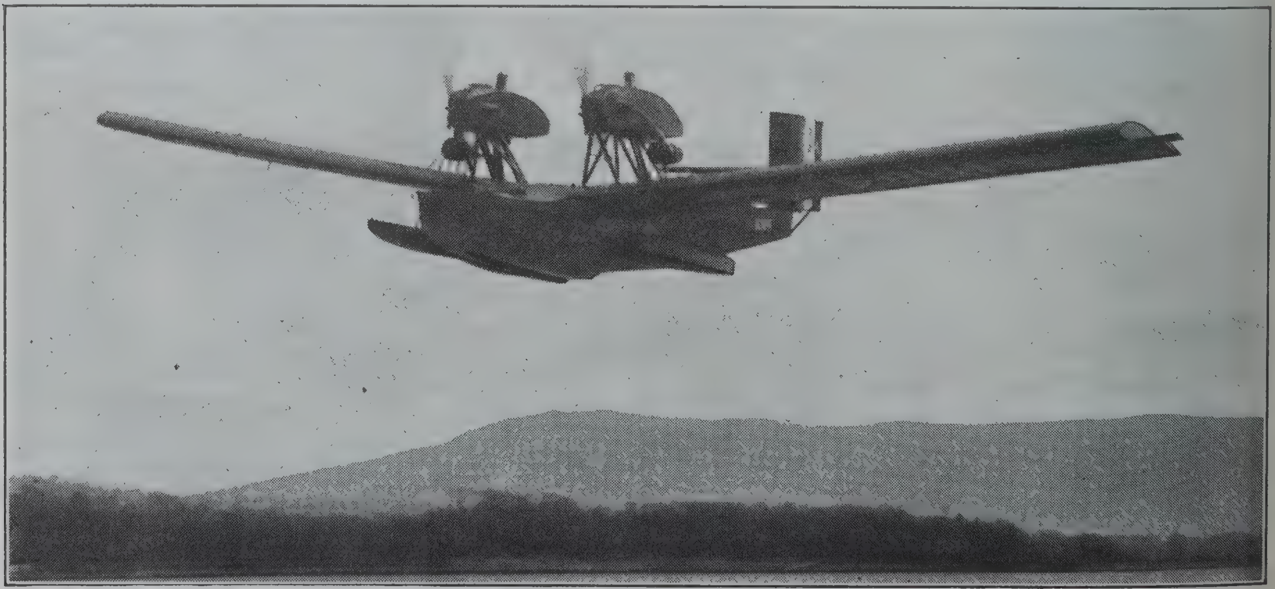
On the occasion of the International Civil Aeronautic Conference which was held in Washington between Dec. 12-14 to celebrate the twenty-fifth anniversary of the first power-driven aeroplane flight, the U.S. Congress voted the Distinguished Flying Cross to Mr. Orville Wright and also one in the name of his brother, the late Mr. Wilbur Wright, in recognition of their work for Aviation.

A NEW AUSTRALIAN TRANSPORT COMPANY.

A company known as Australian National Airways Ltd. has been formed in Sydney by Capt. Kingsford Smith and Mr. Ulm with a capital of £200,000.

The primary object of the company is to operate an aerial mail, passenger and freight service between Melbourne, Sydney, Newcastle, Lismore and Brisbane and, possibly, later in other parts of the Commonwealth and New Zealand.

The machines to be used will be of the three-engined Avro-Fokker type fitted with British engines. All other equipment will, where possible, be purchased within the British Empire.



THE LATEST FLYING-BOAT.—The Beardmore Inverness (Napier Lion engines), the first all-metal flying-boat to be built on the Clyde. The boat is built to Rohrbach design modified by Sq. Ldr. Haig and Mr. Stieger.

CIRRUS ENGINE

CIRRUS RELIABILITY.

CIVILIAN AIR ACCIDENTS.

The following analysis by the Aeronautical Correspondent of the "Morning Post" of Civilian Air accidents since January 1st, 1928, is conclusive proof of CIRRUS RELIABILITY.

ANALYSIS of CAUSE in 13 CASES.

"STALLING" THE CHIEF DANGER.

6 due to stalling.
1 due to rash flying.
1 due to racing in bad weather.
1 due to inexperience.
3 due to carelessness.
1 due to mechanical failure.

"This analysis shows that private and club flying has attained a high degree of safety: that not one serious Light Aeroplane accident can be attributed to engine failure."

"Praise for the absence of engine failure must be mainly bestowed upon the A.D.C. CIRRUS engine, with which the vast majority of Light Aeroplanes are equipped."

(Vide "Morning Post," 29-11-28.)

Specify a "CIRRUS" for your Light 'Plane.

Manufacturers:
CIRRUS AERO ENGINES LTD.,
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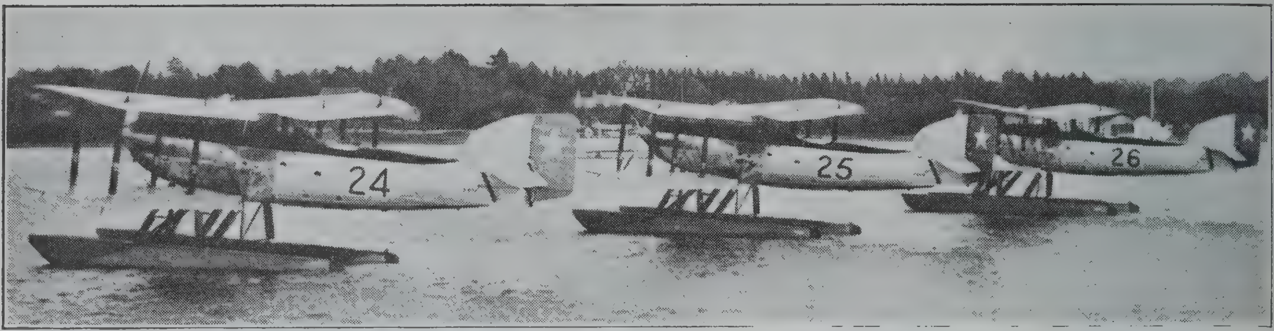
89, KINGSWAY, LONDON, W.C.2.
Works & Aerodrome: CROYDON, SURREY.

Telephone—
Holborn 4076

Cables—
Airdisco London.



FOR CHILE.—A batch of Fairey IIIF seaplanes (Napier Lion engines) awaiting flight test at Hamble before delivery to the Chilean Navy.—(*" Aeroplane " photograph.*)

BRITISH AIRCRAFT IN THE U.S.A.

As the result of negotiations by Air Associates, Inc., the U.S. Agents for the Avro Avian, with the U.S. Department of Commerce and the British Embassy in Washington an arrangement has been entered into between Mr. McCracken, Assistant Secretary of Commerce for Aviation, and Sir John Broderick, Commercial Counsellor to the British Embassy, to permit the registration and licensing of all Avro Avians which have been imported into the United States as well as those which are on order from that country.

Under this arrangement the registration and licensing will be accomplished by the submission of the actual, or certified copies of the, Airworthiness Certificates issued by the Air Ministry for each individual machine involved, each machine to be subject to visual inspection for proper rigging and assembly after arrival in the United States.

It is of interest to note that the Department of Commerce has received assurance of a reciprocal arrangement between the United States and England involving the registration and licensing of American aircraft by the Air Ministry.

This accords with the leading article in THE AEROPLANE of Dec. 5.

Certain trade interests in the States hope that similar arrangements may be made with Germany, France and Italy.

BIG BUSINESS IN AVIATION.

A corporation, known as North American Aviation, Inc., has been formed in the United States which will specialise in investments in, and the development of, aviation in the United States of America and abroad. The new corporation will be headed by Mr. C. M. Keys, President of the Curtiss Aeroplane and Motor Co., Ltd., and will start operations with a paid-in capital of $25,000,000 (£5,000,000).

The management of the corporation, while under the direct supervision of Mr. Keys, will consist of forty or more prominent bankers and executives, among whom may be mentioned Howard Coffin, Chairman of National Air Transport, Inc., Donald Douglas, President of the Douglas Aircraft Co., Victor Drury, President of Canadian Vickers, Ltd., Paul Henderson, Vice-President of National Air Transport, Inc., John Hertz, Director of Curtiss Flying Services, Inc., Walter Marvin and William A. Vanderbilt, Directors of Transcontinental Air Transport, Inc.

A GREAT LAKES DEVELOPMENT.

The Glenn L. Martin Corporation of Cleveland, Ohio, one of the oldest American aircraft companies, has been acquired by the Great Lakes Aircraft Corporation, which has been organised by a powerful Cleveland banking group.

The new corporation takes over the entire Martin factory, which includes a total of 80,000 sq. ft. of floor space and has also obtained a lease on the adjoining flying field.

Mr. Glenn L. Martin, who will be connected with the new company in an advisory capacity only, taught himself to fly on a machine of his own design in 1908 and in the following year established one of the first aircraft factories in the United States. The Glenn L. Martin Company was formed in Santa Ana, Cal., in 1911 and in 1917 it merged interests with the Wright Company, resulting in the establishment of the Wright-Martin Aircraft Corporation of New York.

Later in the same year, however, Mr. Glenn Martin withdrew his interests from this corporation and organised the Glenn L. Martin Co. of Cleveland, Ohio. This company produced the Martin Bomber, the first American aeroplane designed for the Liberty engine, and this machine was standard U.S. Army equipment for some considerable time.

The company has since concentrated, in collaboration with the U.S. Army, on the production of a single-engined convertible land or seaplane suitable for bombing, scouting or torpedo purposes and large numbers of this type have been delivered to the Navy.

The Great Lakes Aircraft Corporation acquires the right to produce the T4M-1, the latest version of this model, a considerable number of which have already been delivered to the Navy Department. The new corporation will also develop this type for commercial use.—L. B.

EAST MEETS WEST.

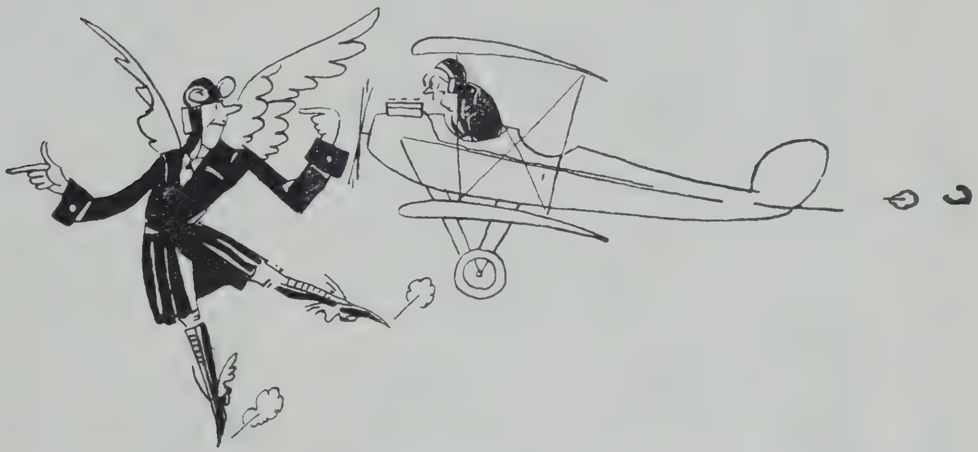
The biggest consolidation of American aircraft interest has resulted in the formation of the United Aircraft and Transport Corporation, with securities exceeding $150,000,000 (£30,000,000) in value.

The new corporation will combine the activities of the Pratt and Whitney Aircraft Corpn., manufacturers of air-cooled radial engines; the Chance Vought Corpn., manufac-

FOR THE ARGENTINE.—One of a series of Fairey IIIF's (Lorraine-Dietrich engines) ordered by the Argentine Navy. These machines are supplied with interchangeable wheel and float undercarriages.

The young man, why is he so glad?

The young man is glad because he has just received his Pilot's Licence.



Has he not obtained that with great celerity?

But of course. He was taught to fly on a Moth.

PRICE
£650
READY TO
FLY AWAY

One supposes, then, that the Moth is a training machine of excellence the most remarkable?

One supposes correctly. Otherwise, why would there be more people learning to fly on Moths than on any other aeroplane?

DH
MOTH

THE GIPSY
MOTH

Streets

THE DE HAVILLAND AIRCRAFT COMPANY LIMITED, STAG LANE AERODROME, EDGWARE, MIDDLESEX turers of high-performance Service aircraft, and the Boeing Aeroplane and Transport Corpn., manufacturers of high-performance military and commercial aircraft and operators of commercial air transport, which carries roughly 25 per cent. of the United States air mail.

The deal was arranged by the National City Bank of New York and the Pacific National Bank of Seattle.

Included on the Board of Directors will be the executives of General Motors Corpn., the Ford Motor Co., the Standard Oil Co., and the National City Bank, four dominant interests in their respective fields.

Mr. William Boeing will be chairman of the Board of Directors.

CURTISS PROGRESS.

A report issued to the Stockholders in the Curtiss Aeroplane and Motor Co. Inc. on Nov. 7, 1928, shows a remarkably satisfactory state of affairs. Nearly 6,000,000 dollars' worth of new stock was offered for subscription a few months before and existing stockholders took nearly all of it.

Enormous expansions are being made in the Buffalo plant of the Curtiss Company. About 47 acres of land near the present plant have been taken over and on these a new motor-factory will be built of approximately 400,000 square feet of floor space. The existing Curtiss plant at Buffalo of about 330,000 square feet will be devoted to the construction of aeroplanes when the new motor-factory has been built. The output of the new plant is estimated to be about 1,500 motors a year, and when completely equipped it will cost about 4,000,000 dollars.

Turning the existing Buffalo plant onto aircraft only will about double the output. This plant will be concerned entirely with war machines. All Curtiss civil aircraft are made by the Curtiss-Robertson Airplane Manufacturing Co. of St. Louis, in which the Curtiss Co. owns 50% of the common stock. Some idea of the magnitude of the Curtiss business may be gathered from the fact that as on Oct. 31, 1928, the orders in hand or being negotiated were as follows :—United States Government $5,347,468, Commercial and Export $4,383,556.—Total $9,731,024.

Added to this must be the Curtiss share of Curtiss-Robertson orders which on that date amounted to $1,280,000.

There is interest in comparing this with the state of affairs at the same preiod in 1927, when the total orders on the books of the Company were $4,180,000.

To meet the immediate demand for Curtiss products, all departments at the Buffalo plant have been put on double shift pending the opening of the new plant.

THE WORK OF THE AERONAUTICS BRANCH OF THE U.S. DEPARTMENT OF COMMERCE.

In view of the differences of opinion which have arisen recently on the subject of the relative value of a British and American Airworthiness certificate, the following information about the Aeronautics Branch of the U.S. Department of Commerce may be of interest, throwing, as it does, some light on the growth of Civil Aviation in the American Continent.

The branch was established some two and a quarter years ago under the directorship of the Assistant Secretary of Commerce, Mr. William P. McCracken, Jnr. All the heads of departments under him are experienced pilots.

The work of the branch is subdivided into four main divisions.

Firstly "Air Regulations" under which are sections dealing with inspection, licensing, medical and engineering duties together with the recently formed Accidents Board.

Secondly, "Airways," which is a branch of the Bureau of Lighthouses, and handles matters in connection with aerial survey, the maintenance of air lines, meteorology, communications and wireless telephony.

Thirdly, "Information," the intelligence direction of the branch.

Fourthly, "Research,"—a sub-department of the Bureau of Standards which deals with the technical examination of such matters as wireless, airway lighting, aircraft engines, general aeronautical engineering, and similar subjects.

An airways mapping section is connected with the Coast and Geodetic Survey; and the study of helium, as applied to aerostatics, is conducted by the Bureau of Mines.

Some idea of the growth of the work of the branch may be gauged from the fact that at its inception the number of civilian-owned machines was 2,200, and it is now approximately 8,500.

During its lifetime officials of the Branch have surveyed and lighted approximately 8,000 miles of airways and will complete shortly a further 7,000. The total mileage of civilian airways under its jurisdiction (either completed or planned) is 14,131,—along which are placed 1,387 airports, of which 386 are municipally-owned and 340 commercially. Of the remainder, 256 belong to the Department of Commerce, 62 to the Army, 17 to the Navy, Marines and Coast Guard, and there are 326 emergency landing grounds.

No less than 890 more airports are projected.

It is common knowledge that the ground organisation of American airways is excellent, particularly the system of lighting and the transmission of weather reports to the pilots.

The medical examination of pilots is very stringent (there are 465 "air doctors" in various parts of the States) and the general qualifications required of a pilot are of a very high order.

Mechanics are licensed for two years, their licenses then have to be renewed, but the license of a "carrying" pilot only holds good for six months without renewal. This system makes possible the frequent checking of the "folder" (or log-book) of each pilot, and the discovery of his defects, if any should develop.

Aircraft are subjected to no less rigorous inspection. They must be licensed, and have their licenses renewed once a year, and must be inspected and approved after any alterations or repairs.

In its efforts to decrease accidents and increase safety the branch established recently the Accidents Board, which investigates all crashes. The personnel of this Board consists of two pilots, one statistician, one doctor, one aeronautical engineer and one lawyer,—the intention being to apply specialised knowledge to each phase of the problem.

The Board examines an accident for "percentage causes" which are subdivided under four heads—personnel, material, miscellaneous and doubtful.

Under personnel for the period January 1 to July 1, 1928, there were five classifications of error for accidents due to the pilot. These were expressed in percentages as follows : error of judgment 8.45; lack of skill 22.95; disobedience to orders 4.95; carelessness or negligence 6.32; miscellaneous 6.32; or a total of 43.29 per cent. due to errors made by pilots.

Under material, the accidents were classified as due to failures in power-plant structure, handling qualities and instruments; these divisions were further subdivided.

Under "power plants" the Board found causes of accidents traceable to the following defects, expressed in percentages : fuel system 5.12; cooling system 0.57; ignition system 4; lubrication system 0.13; engine structure 1.29; airscrews and accessories 0.44; engine controls 0; miscellaneous 0.45; untraced 4.59; or a total of 16.59 per cent. due to failures connected with the power plant.

Similarly under "structural" the accidents were attributed in percentage as follows : controls 0.85; movable surfaces 0.35; stabilising surfaces 0; wings, struts and bracing 1.09; undercarriages 1.64; wheels, tyres and brakes 0.19; floats and hulls 0.03; fuselage, engine-mountings and fittings 0.75; tail skids 0.19; miscellaneous 0.23; untraced 0; or a total of 5.32 per cent. of accidents could be traced as due to structural failures.

During the period considered no accidents were ascribed to failure of instruments and only 0.44 to faulty handling.

To sum up, the Board found that of all the accidents to machines under its control during the first six months of this year only 22.35 per cent. were due to failures of material and only 6.78 per cent. were "undetermined and doubtful."

By this scientific method of investigation the cause of an accident can be traced "right down to magneto-points, and thence back to faults of manufacture," and by reason of its thoroughness, the Aeronautics Branch feels justified in saying "that a beginning towards ordered aviation has been made" despite the fact that the problems that confront it are becoming bigger and more complicated.—S. G.

DEVELOPMENTS IN BRITISH COLUMBIA.

The Directors of British Columbia Airways Ltd. decided recently to resume on February 1, 1929, their Victoria—Seattle—Vancouver service, and have placed an order for one Ford monoplane. The machine is a standard three-engined machine and is to be equipped with the new Ford flotation gear; the accommodation is for sixteen passengers.

A new service is to be established also by the same company between Victoria—Nanaimo—Vancouver. The firm has decided to buy two seaplanes for this route, but the type and make have not yet been decided, save and except that the accommodation is to be for eight passengers. The Directors are examining the relative merits of the D.H.61, and the Hamilton and Fairchild monoplanes. The line to Vancouver via Nanaimo is to be linked up with the Victoria—Vancouver—Seattle service.

Great Western Airways Ltd. of Calgary have overhauled completely just recently "the giant bird of the air"—a Vickers-Viking amphibian, and this machine is to be used by a Vancouver mining company for exploration in the Far North.

No decision has been reached yet as to the site of the permanent aerodrome at Vancouver. The respective merits of those on Sea Island and on the North Shore, east of the Second Narrows bridge, are being examined.—S. G.

The

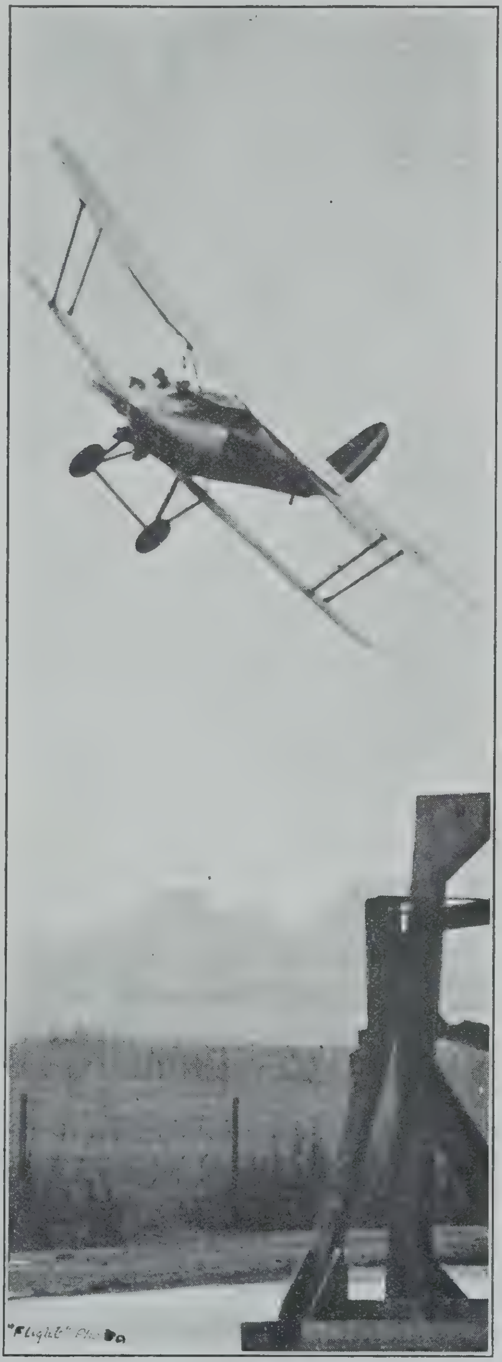
"Bristol"

BULLDOG

ALL-METAL
SINGLE-SEATER

FIGHTER

Adopted
in open competition
for the
equipment of the
Royal Air
Force.



"Flight" Photo

THE BRISTOL AEROPLANE CO., LTD.,
FILTON — BRISTOL.

Telegrams: Aviation, Bristol.
Telephone: 3906 Bristol.
Flying School: Filton Aerodrome

THE ROYAL AIR FORCE.

The London Gazette.

December 11.

Royal Air Force.

General Duties Branch :—The following are granted S.S. comns. as Plt. Offs. on probation with effect from and with seniority of the dates stated :—J. A. Lawson (Lt., A.I.R.O.) (Nov. 19); E. C. A. Wheeler (Nov. 19); W. H. E. Tew (Nov. 25).

The following Plt. Offs. are promoted to the rank of Flg. Off. :—P. C. Fair (May 15); D. K. Hewison (July 10); P. D. Cracroft (Sept. 19); C. R. Clarke (Nov. 2); G. E. Klein (Nov. 2); J. F. McKenna (Nov. 2).

The follow are promoted with effect from Dec. 12 :—Flight Lieutenants to be Squadron Leaders.—M. A. C. Morgan, M.C., D. W. Clappen, R. E. G. Fulljames, M.C., C. Turner, A.F.C., E. S. Goodwin, A.F.C., R. V. Goddard, J. G. S. Candy, D.F.C., S. T. Freeman, M.B.E., F. W. Walker, D.S.C., A.F.C., D. Colyer, D.F.C., H. W. Woollett, D.S.O., M.C., F. H. Laurence, M.C., E. A. Fawcus, F. O. Soden, D.F.C., T. H. Newton, D.S.C.

Flying Officers to be Flight Lieutenants.—F. P. Smythies (Hon. Flight Lt.), G. S. White, C. V. Lock, R. A. B. Stone, W. A. Opie, R. B. Jordan, R. W. G. Lywood, O. R. Pigott, A. J. R. Moss, J. W. Colquhoun, F. V. Beamish, S. G. Connolly, G. N. P. Stringer (Lt., R. W. Kent. Regt., R.A.R.O.), I. A. Bertram (Hon. Flight Lt.), R. L. Bateman, H. J. Gearing, C. Guppy, D. S. Brookes, B. W. Duley, M.M., H. I. Cozens, G. L. Gandy.

The following Plt. Offs. on probation are confirmed in rank (Dec. 9) :—S. O. Bufton, S. R. Ubee, J. A. S. Outhwaite, D. Menzies, W. F. Murray, R. R. Carrol, C. H. R. Little, G. Wood, J. D. Richardson, H. G. Hamilton, F. L. Truman, F. B. S. Downey, G. F. Overbury, G. F. Hales.

The following are placed on the retired list at their own request :—Air Commodore J. A. Chamier, C.B., C.M.G., D.S.O., O.B.E. (Dec. 7); Sq. Ldr. C. G. Burge, O.B.E. (Dec. 1); Flt. Lt. S. C. Black, M.M. (Nov. 18); Flt. Lt. M. H. Coote (Dec. 12). Flt. Lt. D. Billey, D.F.C., is placed on the retired list at his own request and is permitted to retain the rank of Sq. Ldr. (Oct. 12).

The following are transferred to the Reserve :—Class A.—Fly. Off. H. W. Allen (Dec. 3). Class B.—Flt. Lt. O. W. Clapp (Nov. 28); Flt. Lt. H. W. McKenna, D.C.M. (Dec. 12); Flg. Off. E. A. Turnbull (Dec. 5). Class C.—Flg. Off. C. G. H. E. Lumsden (Dec. 9).

Lt. S. T. Morgan, R.N., Flying Officer, R.A.F., ceases to be attached to the R.A.F. on return to Naval duty (Dec. 1).

The following resign their S.S. comns. :—Flg. Off. E. T. M. Smalley (Dec. 5); Plt. Off. on probation R. G. Whalley (Dec. 12). Plt. Off. on probation J. W. Stevens relinquishes his S.S. comn. on account of ill-health (Dec. 12). The S.S. comn. of Plt. Off. on probation R. F. J. Doran Webb is terminated on cessation of duty (Dec. 1).

Stores Branch :—Plt. Off. H. J. Butler is confirmed in rank and promoted to the rank of Flying Officer (Oct. 15).

Medical Branch :—The following Flt. Lts. are transferred to the Reserve, Class Dii :—E. A. Aslett (Dec. 1); W. Parsons (Dec. 3). Temp. Capt. A. R. H. Bennett (General List, Army, Dental Surgeon) is granted a temp. comn. as a Flt. Lt. on attachment to the R.A.F. (Nov. 12); Flt. Lt. H. J. Proctor is promoted to the rank of Sq. Ldr. (Dental) on promotion to the rank of Major in the Army Dental Corps (Nov. 13). The following Flg. Offs. (Temp. Lts., General List, Army) are promoted to the rank of Flt. Lt. (Dental) on promotion to the rank of Temp. Capt. in the Army :—H. I. Clapperton (Oct. 14); A. P. McClare (Nov. 21).

Chaplains Branch :—The Rev. J. F. Cox, M.C., M.A., is granted a perm. comn. (Nov. 22).

Reserve of Air Force Officers.

General Duties Branch.—The following Plt. Offs. are promoted to the rank of Flg. Off. :—Class A.—I. J. Sankey (Nov. 10). Class A.A.—E. F. Rhodes (Dec. 8); D. F. C. Brecknell (Dec. 8).

Special Reserve :—N. D. Wardrop (Nov. 2); T. H. Worth (Nov. 19).

The following Flg. Offs. are transferred from Class A to Class C :—H. D. Wardle (June 2); D. R. Sharman, M.C. (Oct. 28). Flg. Off. R Hall is transferred from Class B to Class C (Oct. 24).

The following relinquish their commissions on completion of service :—Flt. Lt. H. S. Shield, M.C. (Nov. 19); Flg. Off. W. R. Rogers (Nov. 28); Flg. Off. W. Mellor (Dec. 9). Flt. Lt. H. H. Clarke relinquishes his commission on completion of his service and is permitted to retain his rank (Nov. 28).

Medical Branch :—Flt. Lt. Game resigns his commission on appointment to a commission in the R.A.M.C. (Aug. 7); Flt. Lt. B. C. W. Pasco relinquishes his commission on completion of service (July 17).

Appointments.

Week ending December 17.

General Duties Branch.—Wing Commanders J. B. Graham, M.C., A.F.C., to R.A.F. Station, Tangmere, to command, 1/12. G. W. Murlis-Green, D.S.O., M.C., to No. 1 (Indian Wing) Station, India, to command, 1/11. H. J. F. Hunter, M.C., to R.A.F. Depot, Uxbridge, Supernumerary, pending posting, 10/11.

Squadron Leaders J. Noakes, A.F.C., M.M., to R.A.F. Depot, Uxbridge, 1/12. T. C. Thomson, to R.A.F. Depot, Uxbridge, 23/11. A. G. Bishop, A.F.C., to No. 1 Indian Group H.Q., India, 1/11. H. G. Bowen, M.B.E., to H.Q., A.D.G.B., Uxbridge, 17/12.

Flight Lieutenants E. W. Broadberry, M.C., to No. 1 Sqdn., Tangmere, 12/12. G. N. P. Stringer, to No. 101 Sqdn., Bircham Newton, 5/1. H. D. O'Neill, A.F.C., to No. 1 Indian Group H.Q., India, 1/11. G. E. Gibbs, M.C., to R.A.F. Cadet College, Cranwell, 19/12. R. Pyne, D.F.C., to No. 3 F.T.S., Grantham, 19/12. C. L. Falconer, to No. 2 F.T.S., Digby, 19/12.

Flying Officers G. R. Beamish and A. W. Shaw, to No. 3 F.T.S., Grantham, 19/12. L. C. Barling, to No. 1 F.T.S., Netheravon, 19/12. S. H. V. Harris and G. H. Shaw, to R.A.F. Cadet College, Cranwell, 19/12. G. W. Tuttle, to No. 605 Sqdn., Castle Bromwich, 19/12. P. R. Barwell, to No. 602 Sqdn., Renfrew, 19/12. T. G. Pike and M. Griffiths, to No. 5 F.T.S., Sealand, 19/12. A. R. Leslie-Melville, to R.A.F. Training Base, Leuchars, 19/12. J. H. Edwardes Jones, to R.A.F. Station, Duxford, 19/12. D. N. Roberts, to No. 2 F.T.S., Digby, 19/12. F. W. Foster, D.F.C., D.S.M., to No. 2 (Indian Wing) Station, India, 1/11. W. H. Burbury, to Aircraft Park, India, 25/10. T. E. Worsley, to No. 60 Sqdn., India, 1/11. A. B. Smith, M.C., to Aircraft Depot, India, 9/11. A. T. S. Studdert, to No. 10 Sqdn., Upper Heyford, 6/1. (Hon. Flt. Lt.) F. L. Woledge, to R.A.F. Depot, Uxbridge, 1/12. R. G. Hart, M.C., to R.A.F. Depot, Uxbridge, 19/11.

Pilot Officers V. B. J. Jackson, to R.A.F. Cadet College, Cranwell, 19/12. M. G. Philpott, to No. 3 F.T.S., Grantham, 19/12. H. J. Cross, to No. 27 Sqdn., India, 22/10.

Medical Branch.—Flight Lieutenants J. McM. Wilder, to R.A.F. Station, Upper Heyford, 7/1. T. V. O'Brien, M.B., to H.Q., Middle East, 27/11.

Stores Branch.—Flight Lieutenants H. T. H. Copeland and A. B. Wiggin, to R.A.F. Depot, Uxbridge, 3/12. H. L. Woolveridge, to H.Q., 'Iraq, 20/11.

Flying Officers R. F. Wilson and P. H. Wilcox, to R.A.F. Depot, Uxbridge, 3/12. H. Parker, to No. 1 (Indian Wing) Station, India, 1/11. W. A. G. Goldsworthy, to No. 2 (Indian Wing) Station, India, 1/11.

Accountant Branch.—Squadron Leader I. L. Wincer, to R.A.F. Base, Gosport, 1/12.

Flying Officer C. L. Dook, to R.A.F. Base, Kai-Tak, China, 6/12.

The Far East Flight.

The four Supermarine Southampton flying-boats of the Far East Flight, under the command of Group Capt. H. M. Cave-Browne-Cave, D.S.O., D.F.C., returned to Singapore on Dec. 11 on completion of their cruise of Sarawak, the Philippines, Hong-Kong, Indo-China, Siam, Victoria Point and Penang.

SUPERNA PETIMUS.—Marshal of the R.A.F. Sir Hugh Trenchard, accompanied by Air Vice-Marshal Halahan, Commandant of the R.A.F. Cadet College, and Group Capt. N. D. K. MacEwen, Deputy Director of Training, inspecting the Fighter Training Flight of the Senior Term at the R.A.F. Cadet College, Cranwell, on Dec. 14.

The GEARED JAGUAR

The best air-cooled engine of 450 h.p. in the world.

The 14 cylinders and gearing give complete freedom from vibration.

The 3 to 2 reduction gear gives greater propeller efficiency and the higher engine revolutions provide more power.

For a given power the overall diameter is smaller than that of any aircooled engine.

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FLOWN AND KNOWN ALL OVER THE WORLD

The Cranwell Passing Out.

Marshal of the Royal Air Force Sir Hugh Trenchard, G.C.B., D.S.O., D.C.L., LL.D., Chief of the Air Staff, inspected the R.A.F. Cadets at Cranwell on Dec. 14 on the occasion of the Passing-Out of the Fourth Term Cadets.

Sir Hugh Trenchard was received with the Air Salute and inspected the Cadet Wing and personnel of the Cranwell Station. The Cadet Wing then marched past under F/Cadet Under-Officer G. P. Charles. Their bearing and march discipline was up to the very highest standard of the tradition of the Royal Air Force.

Sir Hugh Trenchard then inspected the Cadets in the Workshops and from there went to the Flight sheds and inspected the machines lined up on the aerodrome, and the Fourth Term Cadets.

The Commandant, Air Vice-Marshal F. C. Halahan, C.M.G., G.C.B., D.S.O., M.V.O., then read his Report, which was as follows :—

Strength : The total strength of the Cadet College is 103, of whom 21 are due to pass out this term.

Flying Training : The Cadets have carried out more instructional flying during 1928 than in any previous year, and the cadets now due to pass out have averaged 83 hours' flying, of which 24 hours have been solo on Service types.

Educational Training : In Aeronautical Engineering the work of the cadets of the Fourth Term has reached a high standard. The ability, keenness and industry of this senior term has been exceptional.

In Aeronautical Science the standard of knowledge possessed by the first and second terms on entry was very low, and they should realise that the grounding they can obtain at the Cadet College should be the basis of a continuous study throughout each individual's career.

In English Literature and History the term passing out has utilised the library well, whilst the standard of criticism and self-expression in the Second and Third Terms is encouraging.

W/T and Morse : Cadets must realise the high importance of wireless in the R.A.F. and there is still room for further improvement in their standard of knowledge.

Armament : Flight Cadets have shown exceptional keenness in Armament subjects, and the Fourth Term have shown a very high standard, both in theory and practice, throughout their course.

Air Pilotage : The cadets have displayed much keenness in their practical air pilotage instruction, and although bad weather at the latter half of the current term has interfered considerably with it, the Third and Fourth Terms have had 34 hours' practice.

Meteorology : Close co-operation has been maintained between the Meteorological Office and the officers in charge of practical flying training, with the result that the maximum possible use has been made of the periods in which favourable conditions prevailed.

Discipline : The discipline of the College has been exceptionally good, and the Under-Officers and Non-Commissioned Officers have performed their duties in a very satisfactory manner.

Health : The health of the cadets has been excellent, and admissions to hospital have been chiefly caused by accidents or organised games. Eight admissions were due to motor-cycle accidents.

Physical Training and Games : *Physical Training.*—The standard of physical training is good, especially in the senior terms. There is, however, room for improvement among the First Term.

Skill-at-Arms : The cadets have taken part in two matches this season, the results of which are exceptionally good. Cambridge was beaten by 15 victories to 12, and the London Rifle Brigade by 30 victories to 22.

Rugby Football : The outstanding performance of the season has been the winning of the matches against Sandhurst and Woolwich, the former by 13 points to 8 points, and the latter by 24 points to 15 points.

Association Football : Little success was gained until about a fortnight before the match with Woolwich, which resulted in a win for the College by two goals to one.

Beagles : The pack now consists of seventeen couples and hunting in the early morning was commenced on Sept. 5 and has continued regularly since. Good sport has been shown and four and a half brace of hares have been killed up to date.

I wish to place on record my appreciation of the able manner in which Officers, Civilian Professors and Lecturers, and Non-Commissioned Officer Instructors have assisted me in carrying out the Syllabus of Instruction as laid down by the Air Ministry.

Inter-Squadron Competitions : Inter-Squadron Rugby Cup. "A" Sqdn. 10 pts. to 9 pts. Inter-Squadron Association Cup. "B" Sqdn. 5 goals to 3 goals

Awards : The Sword of Honour, presented to the best all-round Flight Cadet in the Senior Term, has been awarded to :—F/Cadet Under-Officer Charles, G. P.

The R. M. Groves Memorial Prize, for the best all round Pilot in the Senior Term, has been awarded to :—F/Cadet Cpl. Lascelles, D. P.

The Abdy Gerrard Fellowes Memorial Prize for the Flight Cadet obtaining the highest total marks in Mathematics and Science, has been won by :—F/Cadet Cpl. Shelley, T.

The Prize awarded to the Flight Cadet in the Senior Term obtaining the highest marks in Aeronautical Engineering has been awarded to :—F/Cadet Cpl. Shelley, T.

The Prize awarded to the Flight Cadet in the Senior Term obtaining the highest marks in Humanistic subjects has been awarded to :—F/Cadet Sjt. Weston, T. G. W.

The Chief of the Air Staff said that it was two years since he had inspected the Cadet Wing at Cranwell. He wondered whether the Cadets remembered what was said to them at these half-yearly inspections and hoped that they did.

Their Commandant, in his Report, had said that the discipline had been very good. Discipline was not only a matter of clicking your heels and saluting a superior officer smartly. Those things came naturally. Discipline was playing the game with those who were put in authority over you. The Cadets had played the game towards the Captain of their Rugger team and towards those who had trained and coached them and there was no reason why they should not play the game in the same way towards all those who were over them in their work. He did not mean that they were to have no ambition. The two things went very well together.

Speaking directly to the Fourth Term now passing out, Sir Hugh Trenchard said that they were going to Units where they would command men of a very fine class. They must not let these men feel that they were not playing the game by them. They were a very high class of men and they expected to have very fine officers. The Cadets should see that they got them.

With regard to the Parade that he had just witnessed, Sir Hugh said that the words of command had been fairly clearly given. He did not want to hear horrible noises on parade that nobody could understand. He wanted to hear the words of command crisply and distinctly and he did not want to hear a noise like a lion roaring in a cage.

The general turn-out had been, as he expected it would be, good. The R.A.F. should remember that they had got to maintain a very high standard of drill with very little practice. The officers must, therefore, be extra smart at their drill.

The chief object of the R.A.F. Cadet College was to turn out well educated officers who would also fly well. The Cadets must, therefore, if they wished to get on, realise that they had joined a scientific Corps. Each Cadet must specialise in one subject and know something about all subjects. He must determine early the subject on which he wanted to specialise.

Sir Hugh said that he himself was not old enough to have forgotten what it meant to want to have a good time. He did not want the Cadets to become mere bookworms but at the same time unless they worked hard and specialised they would become that fatal thing, "average."

He wished to make a special point of the study of Wireless in the Service. The development of the future of aviation depended to a great extent on wireless and he hoped that they would give it special attention.

Another thing he would like them to consider was riding. Owning a horse and playing polo was not necessarily a rich

"THE RADIO COLLEGE."—Air Vice-Marshal Sir John Steel taking the salute during his inspection of the Aircraft Apprentices at the Electrical and Wireless School, Flowerdown, on Dec. 17.

CONJUGATION OF THE VERB "TO FLY"

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Shall I fly
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I will fly
a "Spartan"

I will not fly
any other

But can I fly
a "Spartan"?

Anyone can
fly a "Spartan"

So I can fly
a "Spartan"

I am about to
fly a "Spartan"

I am flying
a "Spartan"

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man's pastime in the Service. They would find it invaluable when they got to 'Iraq or India. A horse was something to look after and gave a man a wider outlook on life than could be obtained from sitting in a car.

When they joined their Units the Cadets now passing out would find themselves coming up against people and things which might seem hard and unfair and they would go to places that they did not like. But they must take the rough with the smooth and not grumble. Nothing stopped a man getting on in the Service more than having the reputation of being a grumbler.

The Chief of the Air Staff then presented the Sword of Honour and the various Prizes and Challenge Cups.—C. M. McA.

The Flowerdown Passing Out.

Air Vice Marshal Sir John Steel, K.B.E., C.B., C.M.G., inspected the Aircraft Apprentices at the Electrical and Wireless School, R.A.F., Flowerdown, on the occasion of the passing-out of the Senior Term on Dec. 17.

In the course of his speech to the Apprentices, Sir John Steel said that he was continually trying to improve the status of the wireless operator in the R.A.F. He strongly objected to his being called a passenger. He described an occasion recently when an aeroplane had gone up from a certain bombing station at 18.30 hours and had not landed again until 04.00 hours the following day. The machine has only been saved from disaster by the skill of the wireless operator, who had kept in touch with the ground station and had stripped and dried his set three times during the night because of rain in the set.

Sir John Steel then presented the Hyde Thomson memorial prize and Cadetship to A/A W. T. Nichols, and Air Ministry prizes to A/A E. R. G. Masefield, A/A J. A. Wells and A/A E. C. Ashley.

The R,A.F. in Parliament.

FLYING ACCIDENTS.

In the House of Commons on Dec. 11 in reply to Mr. Hore-Belisha, the Secretary of State for Air said that the number of deaths due to flying accidents in the R.A.F. in 1927 had been 57, in 1928, 73. These figures included casualties to Reserve, Special Reserve, and Auxiliary Air Force personnel under training and to Navy and Army personnel attached to the R.A.F. In 1926 the corresponding figure had been 85.

RECRUITING.

In the House of Commons on Dec. 11 in reply to Mr. Hore-Belisha, the Secretary of State for Air said that 5,521 effective applications for enlistment in the R.A.F. had been received from men and boys during the period Jan. 1 to Nov. 30, 1928. The number attested during that period had been 1,615 men and 1,104 boys.

PARACHUTES IN THE FLEET AIR ARM.

In the House of Commons on Dec. 12, in reply to a question by Capt. Garro-Jones, the Under-Secretary of State for Air said that machines of the Fleet Air Arm and other sea-going aircraft had not yet been supplied with parachutes owing to the danger of the wearer becoming entangled in his harness if the machine fell into the sea. Research and experiment with a view to the design of a satisfactory quick-release gear had been proceeding continuously and although certain difficulties remained to be solved it was hoped that these might be overcome in the early future. As regards the rest of the R.A.F. a parachute was now provided for every seat in every first-line machine capable of taking it.

Capt. Garro-Jones said that he thought that the question of quick-release was just as important in the case of land machines owing to the possibility of fire.

The Martlesham Dinner.

The Officer Commanding, the Officers and the Civil Staff of the Aeroplane and Armament Experimental Establishment at Martlesham gave their Annual Dinner to Representatives of the Aircraft Industry on December 14, and it was, according to custom, a thoroughly joyous affair. Being essentially a Service party the proceedings cannot properly be reported in detail.

The Commanding Officer, Wing-Comdr. Harold Blackburn, as usual was an excellent Chairman, and, though he disclaims any ability to make a speech, he managed to be very witty and to get in some shrewd side-blows at prominent members of the Trade while proposing the Guests. The fact that this would be the last Martlesham Dinner at which he would preside caused general regret.

Mr. Handley Page, replying, made quite one of the funniest speeches which even he has ever made, but apart from the impropriety of reporting Service gatherings in detail, most of it was so personal that a reproduction of it would probably involve personal violence between a number of individuals.

Sir Sefton Brancker, speaking later, competed valiantly with Mr. Handley Page in entertaining the company, as did Mr. John Lord.

Thereafter the proceedings took their usual course, though perhaps the habitual rough house was not quite as rough as usual. Possibly our test pilots are growing older and more staid. Nevertheless those who had the privilege of being present spent as usual a thoroughly enjoyable night and morning.—C. G. G.

SPORT IN THE R.A.F.

A Cranwell Trophy.

Air Chief Marshal Sir Hugh Trenchard and Lady Trenchard have presented a Cup to the R.A.F. Cadet College in commemoration of the first victory by the Cadet College Rugger Team over the Shop and Sandhurst in the same year.

The Cup will be engraved "Rugby Football. *Superna Petimus*. Presented by Sir Hugh and Lady Trenchard to the Royal Air Force Cadet College, Cranwell, in commemoration of the first victory over both the Shop and Sandhurst in the same year by the Rugby Football XV of 1928."

This inscription will be followed by the names of the Team.

[May one suggest that when in future Cranwell achieves another double victory the names of the victors shall be similarly inscribed on the cup, or plinth?—C. G. G.]

Rugby Football.

The final trial for the R.A.F. representative Rugby Football XV was held at Uxbridge on Dec. 17. A number of changes in the teams originally selected had to be made. This confusion was apparently caused by the Meteorological Department of the Air Ministry, who assured the R.A.F. Rugby Union officials that nothing could prevent the frost on Saturday from holding until well over Monday, with the result that the Trial was cancelled on Saturday. On Monday morning the frost had definitely departed and the Trial was called on, but as several of the selected players had gone on leave and could not get to Uxbridge, others had to be roped in at the last minute.

In the first few minutes of the game Vines was crocked and after about ten minutes play Harvey had to retire with a damaged knee. A call for volunteers from among the spectators to replace Vines was nobly answered by Flt. Lt. J. I. T. Jones (of the R.A.F. team of 1920-21 and 22), who soon showed that the passage of a few years has no ill effects on a former player who takes Refereeing seriously.

The very heavy state of the Depot ground prevented any display of normal form and the backs were specially handicapped.

The Whites, or Probable side, scored five tries in the first half, only one of which was converted owing to the sodden state of the ground and ball. Harvey showed excellent form on the wing during the few minutes before he was injured. Llewelyn, who was the Cranwell stand-off half last year, played a good game at inside, but was even better in the second half when he was transferred to the Colours side as stand-off.

Among the forwards G. R. Beamish, Chick, and F. V. Beamish were outstanding on the Whites' side and Clarke on the Colours' side throughout the game.

In the second half the Whites were still on top and scored a goal and two tries to a try. Their superiority lay in the work of the forwards and the accurate handling of Cotton and Pott in the three-quarter line. The teams were:—

Whites.—Flg. Off. H. G. Jolleff; Flg. Off. G. D. Harvey, Plt. Off. H. D. Cotton, Plt. Off. J. G. Llewelyn, Flg. Off. C. H. G. Bremridge; Flt. Lt. R. V. M. Odbert, Sq. Ldr. J. C. Russell; Flt. Lt. F. V. Beamish, AC. V. E. Maxwell, L-AC. Munkley, Flt. Lt. C. D. Adams, Plt. Off. J. Beaumont, Sjt. Buckley, Flg. Off. G. R. Beamish, Flt. Lt. J. S. Chick.

Colours.—AC. W. F. Sargent; AC. Kendall, Flg. Off. C. P. Vines, AC. Baker, Flg. Off. T. Downe; Plt. Off. J. R. H. Pott, Plt. Off. M. V. Delap; AC. Ley, F-S. Cockell, Flg. Off. Reynolds, Flt. Lt. O'Connell, Plt. Off. Franks, AC. Beasley, AC. Kirby, Flg. Off. J. Clarke.

The first fixture for the R.A.F. representative side is against the Police at Newport on Jan. 5, 1929.—C. M. McA.

THE SCHNEIDER TROPHY CONTEST, 1929.

The Royal Aero Club has received an entry of three competitors for the Schneider Race 1929, on behalf of Italy. No other entries have been received, but hopes exist of entries from Germany, France, and the U.S.A.

Entries for the Contest close on January 1, 1929.

A meeting of the Schneider Sub-Committee was held on December 12. Those present were:—*Royal Aero Club.*—Lt.-Col. M. O'Gorman, C.B., in the Chair; Lt.-Col. W. A. Bristow, Lt.-Col. M. O. Darby, O.B.E.; Capt. C. B. Wilson, M.C. *Air Ministry.*—Maj. J. S. Buchanan, O.B.E.; Sq. Ldr. R. L. G. Marix, D.S.O.; Wing-Commander S. W. Smith, O.B.E.; F. Tymms, M.C. *Society of British Aircraft Constructors.*—Comdr. James Bird, H. Burroughes, H. T. Vane, C.B.E. *In attendance*:—H. E. Perrin, Secretary; B. Stevenson, Assistant Secretary.

Having received the reports on the aerial survey of various parts of the English Coast, the Committee came to the unanimous decision to hold the Race in 1929 on the Solent.

So now we know who is responsible.

At any rate the decision to hold the Contest (which is *not* a Race) over the Solent is quite right.—C. G. G.

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WORLD'S LIGHT PLANE SPEED RECORD BROKEN

ON Friday last Mr. A. S. Butler, Chairman of the De Havilland Aircraft Co., Ltd., with Mrs. Butler as passenger, flying his own private

"GIPSY-MOTH"

broke (subject to confirmation) the World's Speed Record for two-seater Light Aeroplanes over 100 Kilometers, averaging

119·84 Miles per Hour

This was the same type of "GIPSY-MOTH" which earlier this year gained for Britain the World's Height and Duration Records for Light Aeroplanes, and in each instance the lubricant chosen was—

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PRODUCTION PROBLEMS OF THE AIRCRAFT INDUSTRY.

The paper by Mr. F. Sigrist, M.B.E., A.F.R.Ae.S., on "Some Aspects of the Production Problem in Aircraft," read before the Royal Aeronautical Society on Nov. 22, dealt largely with the more purely technical problems which affect the organisation of an aircraft factory, but owes its chief interest perhaps to the very frank statements made by the author on those peculiar difficulties which arise rather from the needs of the Air Ministry than from technical reasons.

The paper opened with an apology for the use of the word production, which might be regarded as a misnomer, because in the circumstances of to-day aircraft were "constructed rather than produced." The full benefits of output were only realised when there was a steady flow of work over a period.

Owing to the requirements of the Air Ministry, bad luck, difficulties with engines, or unforeseen circumstances—according to the individual opinion—the aircraft constructor seldom enjoyed such a period. His year was made up of a period of high peaks and depressions. For six or nine months he might be very busy—even working overtime—and then run into a slump.

No less than sixteen distinct classes of craftsmen were employed in the Industry, outside of technical and administrative staff. About 45% of this labour was skilled, 35% semi-skilled, and 20% unskilled, but in all classes special instruction was necessary before the individual could be usefully employed on aircraft. During periods of slackness efforts were made to retain a nucleus of skilled men, even if it was necessary to work "short time," but the result was inevitably that the better men sought work in an industry offering more stable conditions of employment.

That experimental production was a costly and long drawn out process was generally agreed. This was due partly to delays in design and in supply of materials, but to an even greater extent to alterations in specifications. Of these latter Mr. Sigrist says "I cannot offer a solution of this problem . . . . as modest laymen we cannot be expected to understand the considerations of high strategy and tactics which dictate these requirements and any criticism would therefore be ambiguous."

As to the more purely technical aspects of experimental production, the author found that one man, either from the works or the drawing office staff, should be made responsible for progress. He should act as liaison officer between design and construction, receive all drawings, check quantities, requisition necessary materials, and deal with all "snags" as they arose. A good deal of delay sometimes arose from difficulty in getting special materials and a little care by the designer, aided by collaboration with the production department, and occasionally compromise, was very helpful.

When an experimental type was accepted for service, production procedure must depend on the individual factory concerned, the particular type involved, and the quantity ordered. The ideal to be aimed at was an even flow of work throughout the factory, but this ideal was seldom attained because of Service modifications, and delays of material, etc. Before production was started the whole procedure should be discussed thoroughly by all concerned, and it was here that the liaison officer should produce all the data in his possession as to probable difficulties and sources of delay. The planning department, who receive drawings, requisition materials, place the issue of orders to the works, decide on jigs and tools necessary, deal with all modifications and queries, and fix piece-work rates, etc., was in Mr. Sigrist's opinion the hub of the works.

Output was bound up with design, and each individual would have his own views as to the best method of design for production. The author was not prepared to advocate any particular system as outstanding, but he did believe that each particular case must be considered on its own merits. There seemed in some cases to exist what he called a "machining complex," which led to the feeling that machine shop work was unsatisfactory compared to sheet metal work. This was almost entirely a fallacy.

Where a machined part could be replaced by a stamping this should be done, but if the choice lay between a complicated sheet metal fitting and a machined part the latter was usually satisfactory, particularly if drop forgings could be used.

Coming to methods of manufacture developed by the H. G. Hawker Engineering Co. Ltd., Mr. Sigrist described their well-known square or flattened tube fuselage construction, for which half-a-dozen press tools only were needed to produce all the joint fittings in the after section of fuselages ranging in size from a light aeroplane to a day-bomber such as the Horsley.

For spars the solid drawn "double-eight" section had great merits for smaller machines, and a type drawn from H.T. steel strip, consisting of two polygonal booms, with a corrugated web, met their needs in other cases. This spar consisted of three pieces only and required only two rows of rivets for assembly.

For ribs they had used duralumin tube, duralumin strip and aluminium sheet. The tubular rib was the lightest, but the material was costly. The strip rib, rolled or drawn section, was easier to produce. The pressed aluminium rib, in quantity was cheap, but heavier than the other types. Purely personally he preferred the wooden rib and saw no reason why it should not be used with metal spars.

Tinned steel tanks were a straightforward job, and if made in sufficient quantity sheet and beetle plates could be pressed and the whole jig-assembled. Aluminium and duralumin tanks required more care, but were quite satisfactory.

Inspection could be responsible for much difficulty and delay. No one cavilled at the need for thorough inspection, but there was a tendency to interpret too literally a series of regulations and limits which were often too severe. A relaxation in this respect, giving more discretion to the inspector was desirable.

Choice of plant was a matter for individual consideration. Special purpose machines had usually to be made to the constructors' own designs, and were often very well worth their cost. Care in maintenance, and frequent inspection of machine tools paid for itself, and so did the clearing of swarf from machines frequently and storing it in labelled bins so that full value as scrap could be obtained for it.

Finally, referring to production in emergency, Mr. Sigrist said: ". . . . the Staff view of aerial warfare is that in the first clash of hostilities casualties in machines and personnel will be heavy, and the side which can most rapidly equip will be the predominant party. . . . In other words, the Industry must be in a position to assume the rôle of a third line of defence. Frankly, we cannot accept this to-day and until we are on a basis which ensures continuity of output . . . . the position will still be serious."

In the event of a sudden call for one hundred varied machines within seven days the chance of a response of more than 30% of the required quantity is considered remote, and the period necessary to work up to an output of 200 machines per week beyond estimate. "We cannot expand immediately, neither can we find sufficient men to instruct allied trades which might be of assistance. Even if we did manage to produce the machines the engine question would still remain, and in its way seems less capable of solution."

In the discussion which followed, Group Capt. Fletcher, Deputy Director of Organisation, of the Department of the Chief of the Air Staff, who opened the discussion, contented himself with the remark that the paper was interesting and illuminative from the producer's point of view. The remainder of the speakers, drawn mainly from the ranks of those concerned with aircraft construction, merely enlarged and approved Mr. Sigrist's views as to the preparedness of the Industry to meet an emergency demand. Mr. Handley Page said that those in control of military aviation had as yet shown no sign of formulating in their requirements any mass demand. Alterations were so numerous even on Service types in so-called production that their manufacture became merely "day-by-day jobbing work."

A VISIT TO R100.

The approach to Howden is by a good road marred by two swing bridges which not only cause delay but actually charge about ½d. per foot for the privilege of crossing them.

On arriving at the prosperous looking little town of Howden too early for visiting R100 (which is on view free of charge to the Great British Public on Saturdays from 1 p.m. to dusk and on Sundays after 10 a.m.) a visit was made to the local A.A. hotel for needful refreshment, only to be greeted by "no lunch can be provided on Saturdays," the remark "then I suppose the inhabitants of this town fast during the week-end" was met with "Well there is nothing to eat."

The rival hotel next door was providing a lunch (ordered in advance) for a party and had no food to spare. Truly a remarkable example of two inns with but a single thought—"Starve the brute."

There was nothing for it but to visit R100 with an unsatisfied inner craving which had been growing for 150 miles.

The shed, which is about a couple of miles from the town, is surrounded by concrete floors and foundations (a relic of war time activity) which formed an excellent park for about 100 cars and three large charabancs.

On entering the shed and paying 2s. one is surprised to notice that the entertainment tax is levied, truly a strange way of promoting aeronautics, but the ways of a Government are as inscrutable as those of providence.

The airship at first glance appears to be nearly finished most of the fabric panels are in place and the 700 odd ft. of length and 133 ft. of girth entirely fills one bay of the shed. The writer would be glad to know whether the designers built the airship to fit the shed or whether the shed was really large enough to house a 5,000,000 cubic ft. airship of the best possible ratio of length to diameter.

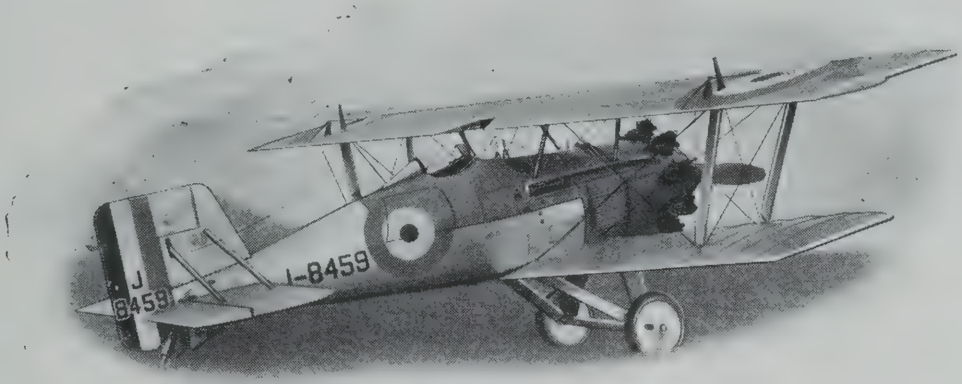
Visitors have to wait until a party has collected when a guide takes charge in the best and most up-to-date Cook's tourist style.

The first stop is made at the benches, where the duralumin girder work has been built up, and the jigs on which the tubes are formed. Near by is the rudder almost complete, and on account of its comparatively small size, shows the construction of the control surfaces.

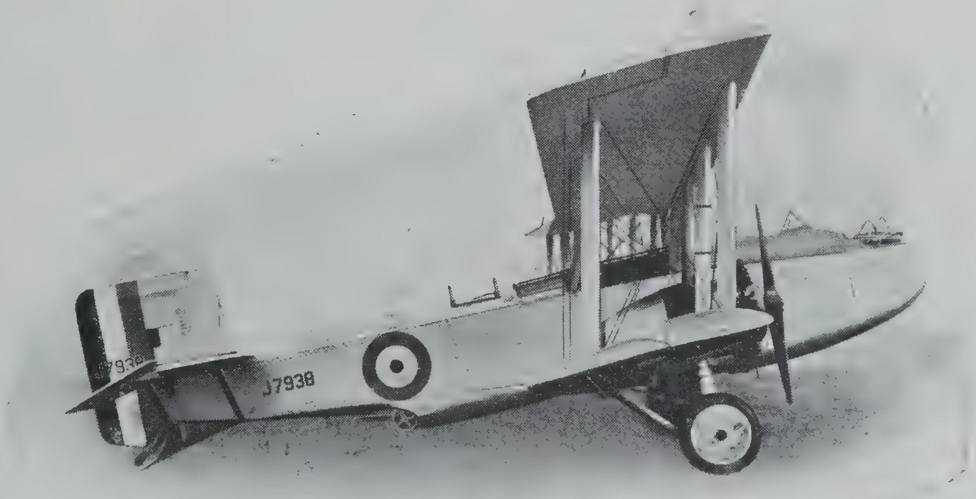
The trailing edge and lighter struts are formed by spirally wound duralumin tubes. These tubes are formed by winding a strip of about 20 swg. duralumin on jigs in such manner that the edges overlap, these overlapping edges which form a helix of about 2 ft. pitch are rivetted at about 2 ins. centres. This should make a very reliable and stiff tube, but the labour cost must be very high. The ribs are of sheet duralumin with lightening holes, all edges being flanged, stout ribs and stringers of similar construction are used as required, internal bracing being largely of piano wire with soldered ferrules without strainers. The hinge post is of box-girder form with eye-bolt hinges having self aligning ball bearings.

The next halt is made at a fin and elevator ready for covering; the method of construction is similar to that of the rudder but the size is so great that it is difficult fully to appreciate all the details, one detail of interest is the point of attachment of bracing cables to the box-ribs, 4 cables of apparently 2 in. circumference meet at a point which is well stayed to the various light ribs and stringers. The elevator is apparently controlled by a worm and wheel but it is impossible to approach sufficiently near to ascertain the exact construction.

One engine car was on view in a finished condition. It



The Boulton & Paul "Partridge" single seater fighter of all-metal construction.



Boulton & Paul All-metal "Sidestrand" Day Bomber. Chosen recently after exhaustive tests as a Royal Air Force Service Machine.

BOULTON & PAUL LTD
NORWICH

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LONDON OFFICE: 135-137, Queen Victoria St., E.C.4
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is fitted with 2 Rolls-Royce Condor engines, a reverse gear and wooden propeller. The radiator is retractable to prevent over-cooling.

The chief show feature is the passenger accommodation; it is 3 decks high and in contrast with R101 is only one ballonet in length.

The bottom deck is accommodation for the crew, the kitchen and lavatory accommodation, the latter being very extensive and elaborate.

The top deck has cabins and lounge which is in the form of a gallery overlooking the dining saloon on the middle deck. The cabins although small seemed comfortable with a highly ingenious type of spring mattress largely made of duralumin.

There are also cabins on the middle deck opening onto the dining saloon.

The tables are shown laid for a meal with shaded electric lights and flowers, and are quite worthy of a showroom window in Regent Street.

Both the upper decks have promenade decks within the envelope of the airship. I understand that glass and cellon windows are to be fitted to enable some view of the ground to be obtained.

The general effect of the polished Balsa-wood fittings of the passenger accommodation is very pleasing, but on thinking of the accommodation when actually in flight with a full complement of passengers and stewards the picture does not look so bright.

The dining saloon seats 50; the others are supposed to be in the lounge or on the promenade decks, and it rather looks as if, when the stewards are busy serving a meal or in the cabins, the congestion would be rather like a tube train at 6 p.m.

The writer has had experience of somewhat similar lay-out of passenger accommodation in a 50-ton steamer in a remote part of the tropics and it was very far from ideal. Promenade decks sound delightful but they are closed in to prevent undue aerodynamic losses, so there will be no fresh air, although the dining saloon is heated electrically and may be all right; probably the promenade decks will be cold as well as stuffy, and the position of the kitchen is such that it ought to give an accurate forecast of the next menu to the uttermost corner of the accommodation. The writer feels that unless he is really in a very great hurry to get anywhere he would prefer a tramp steamer to an airship until the number has risen to 1,000; let us hope that progress will be sufficiently rapid to bring this number within a decade.

BM/ZRMX.

A CENTRAL AUSTRALIAN FLIGHT.

In the summer of 1928 the Managing Director of the Larkin Aircraft Supply Company Ltd., Captain H. J. Larkin, M.C., D.F.C., together with one of the company's pilots—Captain F. Neale,—completed a very meritorious aerial survey expedition of 3,000 miles across Central Australia—from Melbourne to Hermannsburg and back. The machines used were a D.H.50 and an A.N.E.C. 6-seater, each of which was equipped with a Rolls-Royce Eagle engine.

The pilots left Melbourne on July 4, setting a course for Mildura, a large town on the Murray River, New South Wales, where a stop was made for lunch. By night-fall the party reached Broken Hill. On this section they had flown over country across which Australian Aerial Services Ltd. operates an air-mail service.

The next section of the flight, over the area Broken Hill—Wertalona Station, took them across an uncharted and sparsely populated country. They reached safely Farina (a fair-sized town on the railway line from Adelaide to Darwin), where they spent four days and where they saw the first signs of outpost life—aboriginals, camels, donkey teams.

Their next stopping-place was at Oodnadatta, the terminus of the Adelaide—Darwin Railway, where they spent the night. Next day they reached their objective, Hermannsburg, after having landed at Charlotte Waters for fuel.

Their machines were the first aircraft ever seen in Central Australia, but the authorities at Hermannsburg Mission Station had nevertheless prepared an excellent landing ground for them. The machines were pegged out in the open for six days while the party proceeded by camel to Palm Valley, an oasis of great beauty, to investigate the possibilities of opening a winter tourist encampment in the valley in 1929—such tourists to be taken there by air.

In Central Australia, where Hermannsburg is situated, the primitive natives still hunt for a living and their customs are of great interest to the very few tourists who have come into contact with them. They relish spiders, Wichiti grubs, goannas and such like. The fauna and flora are also unusual, and there exist here some specimens of each not to be found in any other part of the World.

Several new species of ants and beetles have been discovered, and a most interesting find is the Trap-Door Spider, which builds a hinged door over its nest. Strange as well as beautiful birds frequent these parts, although some of the most interesting are rapidly becoming extinct. Dingoes—Australian wild dogs—abound, although warred against. The kangaroos in Central Australia, unlike their southern brothers who grow grey fur and live on the flats, grow red hair and live in the mountains. They are here called Euros.

Even the white inhabitants are a distinct type. They enjoy many of the native foods, such as Wichiti grubs, emu and goanna eggs, etc., and are as hard as nails, used to suffering privations of many kinds. And few of them can see a joke—having lost their sense of humour entirely in the loneliness.

Deposits of mineral are numerous, and include gold, mica, iron, opal and silver.

All members of the party were greatly impressed with the possibilities of the place, and if a small developmental subsidy should be granted by the Federal Government arrangements will immediately be made to provide a well-conducted winter encampment in 1929, when, no doubt, large numbers of Overseas and Australian tourists will visit Central Australia.

After completing the survey the two pilots flew back from Hermannsburg to Melbourne, a distance of 1,300 miles in four days. During the whole course of the trip only one small mechanical trouble was experienced—a leak in one of the water jackets of one of the engines.—S. G.

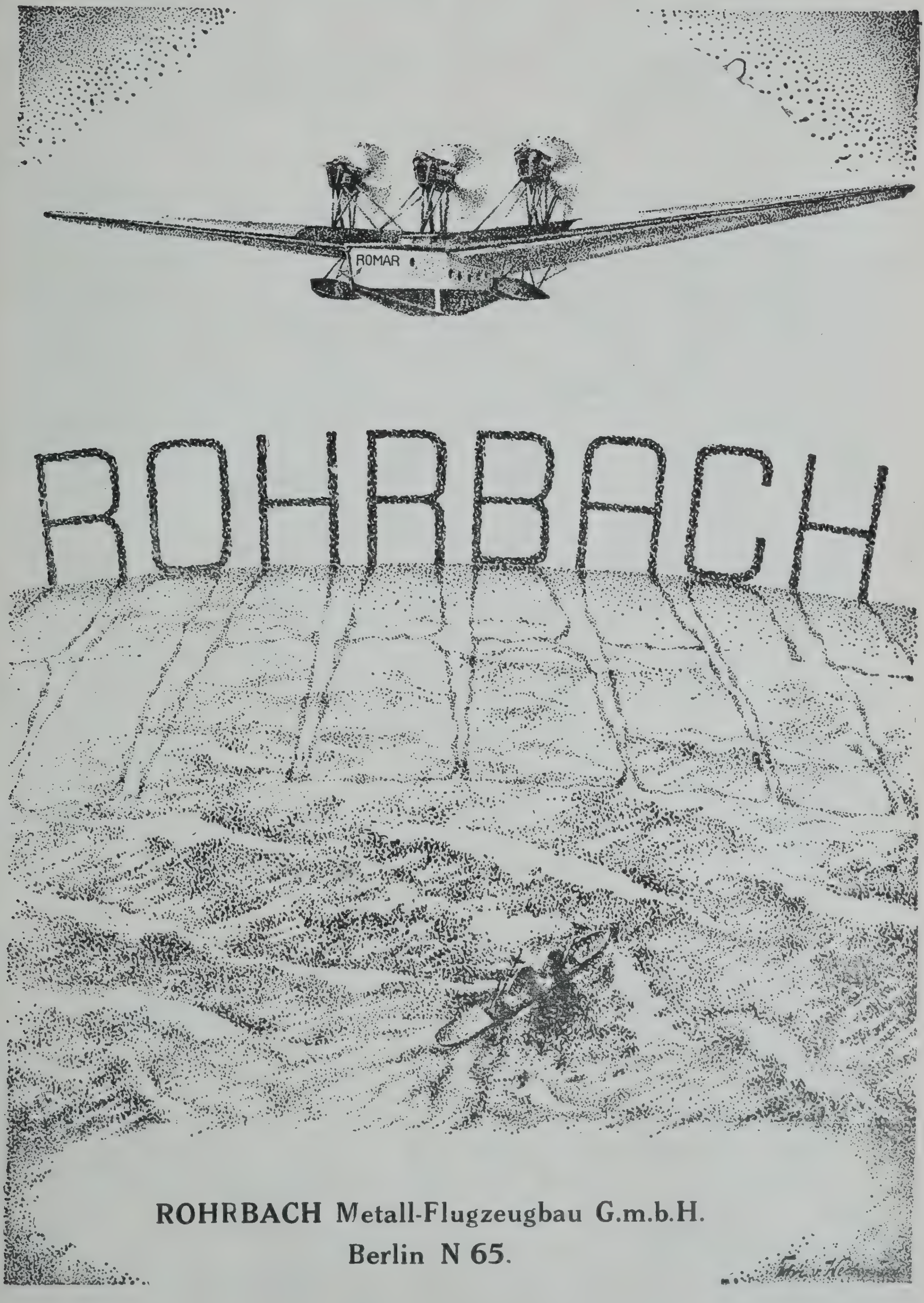
WIRELESS BEACONS ON AIR LINES.

WASHINGTON, D.C.—A vibrating reed device which is sensitive to the signals sent out by radio beacons has been developed to indicate the true course for pilots flying in fog or above the clouds.

The instrument consists of two white-tipped vibrating reeds mounted on the instrument board of a shock-proof case. The reeds are attached to electro-magnets which are connected to the plane's radio set in place of the regular headset. Upon reception of a radio signal these reels vibrate, and if the vertical lines produced by their white tips are equal in length the pilot knows he is on the course.

Owing to the mechanical tuning of the reeds they are extremely free from the effects of all kinds of interference unless the interference is enough to block the valves in the receiving set. The design of several types of reed indicator unit is described in *Research Paper No.* 28 of the Bureau of Standards, just published.—(*Aviation.*)

THE LARKIN OUTFIT.—In the middle Capt. H. J. Larkin, M.C., D.F.C. On his left Mr. J. A. Gourlay, General Manager, and on his right Mr. W. S. Shackleton, Technical Manager (late of Beardmore's).



ROHRBACH Metall-Flugzeugbau G.m.b.H.
Berlin N 65.

CIVIL AVIATION IN PARLIAMENT.

MUNICIPAL AERODROMES.

In the House of Commons on Dec. 12, in reply to a question by Mr. Rennie Smith, the Under-Secretary of State for Air said that the Sheffield Corporation had notified the Air Ministry that they contemplated taking steps to acquire a site and to obtain a renewal of the powers conferred upon them by the Sheffield Corporation Act, 1920, in regard to the establishment of a municipal aerodrome. An official of the Air Ministry had recently visited Sheffield at the request of the Corporation for the purpose of inspecting possible sites.

A LONDON—SOUTH AFRICA SERVICE.

In the House of Commons on Dec. 13, in reply to a question by Sir R. Thomas, the Under-Secretary of State for Air said that a number of flights between London and South Africa and also between intermediate points, such as Khartum and Kisumu, had been made and valuable information had been obtained as a result. They had, for example, served to furnish data regarding landing grounds and the best route to be followed, but the actual details of the route selected would naturally depend upon whether seaplanes or landplanes were to be used over certain stages of the journey. These and other questions could only be finally determined when concrete proposals for an air service to the Cape had been formulated. He was expecting such proposals in the very early future and, if they appeared *prima facie* practicable, immediate steps would be taken to invite the co-operation of His Majesty's Government in the Union of South Africa, who were aware of our general intention, and desired to develop Imperial air communications of this nature.

ANOTHER NEW LONDON AERODROME.

The Fairey Aviation Co. Ltd. have bought a piece of land at Harmondsworth (near Colnbrook), for an aerodrome. The Firm has become forced to move to a private aerodrome because of the secret nature of its test work.

The new aerodrome covers 150 acres. It is exceptionally well drained and is free from obstruction on all sides. The distance to the new aerodrome is 3 miles from the Company's works at Hayes, from which it is reached by good broad roads. Sheds are to be erected with complete testing equipment.

The aerodrome will probably be ready for use some time next year.

This will make the third aerodrome in this district, the other two being Feltham, the G.H.Q. of National Flying Services Ltd. (Guest and Co.), and Heston, the G.H.Q. of Airwork Ltd.

Another big aircraft firm is negotiating for an aerodrome in North London but at present affairs have not reached a stage when details can be given.

STAG LANE NOTES.

Stag Lane sees so many events of air importance and is the jumping-off place for so many historic flights, that when a week passes without something of the sort occurring things seem to be extraordinarily quiet. Actually there is no lull in activities, even at this time of the year. Engine and aircraft production continues with the same satisfactory regularity and the new buildings are gradually nearing completion.

In connection with the building operations it is worth recording that the main road into the aerodrome, which at present is in a very bad state, is soon to receive attention and will give place to a first class road. This work is necessarily held up until such time as the heavy lorries, inseparable from building work and the installation of machinery, have ceased to call.

Despite a week of almost unrelieved gloom, fog and mist, nearly forty hours' flying has been accomplished. This in addition to the London Club's hours. Considering that there is no regular air-line operating from Stag Lane with daily services to schedule to keep the figures up, the total number of hours flown must be regarded as very good going.

The School reports two new lady pupils—the Misses Lord and Ford—who have begun work in spite of the poor weather.

Among the usual large number of Moths completed and tested was the reconditioned RI, a machine well known to followers of the light plane movement, lately the property of the Duchess of Bedford and now going to Lympne to do good work for the Cinque Ports Flying Club. The C.P.F.C. authorities are evidently fully alive to the advantages of distinctive markings. This machine has a blue, white and orange, zig-zag band on the fore part of its white fuselage and a pennant composed of similar colours on the tail end. In addition there is a tri-colour "armlet" on each strut. The whole scheme, though very effective, is somewhat dazzling.

An order for four Gipsy-Moths has been received by the De Havilland Co. from their agents in China. The machines are intended for commercial use, although at present there are no details available as to what nature of commercial work this will be.

It is interesting to note that this is the first order from China for British aircraft since 1921 and the contract was secured in face of very brisk foreign competition.

Another interesting Moth sale is reported from New York, where the Moth Corporation have supplied to Heyer Products Co., electrical equipment manufacturers, a Gipsy-Moth with Handley Page slots for the purpose of test work in connection with their products. It will be used as a flying laboratory for the testing and development of magnetos and electrical equipment for aircraft.—C. A. S.

CARBURATION.

Mr. Alan S. Butler, who recently raised the World's Speed Record to 119.84 m.p.h. for two-seater light aeroplanes over a closed circuit of 100 kilometres, used a Zenith carburettor on the Gipsy engine of his De Havilland Moth.

The connection between a light aeroplane success and a Zenith carburettor is not new, for away back in 1920 Mr. Bert Hinkler used a Zenith on his famous non-stop flight from Croydon to Turin on a Baby Avro (Green engine), which was in fact the forerunner of the present day light aeroplane.

Mr. W. L. Hope used a Zenith on the Gipsy-Moth on which he won the King's Cup for 1928.

THE FLYING CLUBS.

The London Aeroplane Club.

[Sec.: Harold E. Perrin, 3, Clifford Street, London, W.1.]
Aerodrome: Stag Lane Aerodrome, Edgware, Middlesex.

Report for week ending Dec. 16.

Instructors: V. H. Baker, M.C., A.F.C., F. R. Matthews. *Ground Engineer*: C. Humphreys. *Aircraft*: 2 (MP, XS).

Flying Time: 11 hr. 5 min.; *Instruction*: 7 (4 hr. 45 min.); *Soloists*: 10 (6 hr. 20 min.).

Notes.—On Dec. 14 Mr. D. T. Bennett completed the tests for his Aviator's Certificate.

Shed Accommodation.—The Club has now taken over the new shed for the accommodation of the machines. The shed provides ample room for the Club aircraft and also a very excellent engine repair shop.

Members' Room.—The Members' Room, Bar and Kitchen are well on the way to completion and the House Committee is now busily engaged in arranging for the necessary equipment. Luncheons and teas will be provided daily. It is hoped that these facilities will be available to the members by the first week in January.

Christmas Ground Staff Fund.—The Christmas Ground Staff Fund has reached nearly £30. Members are reminded that the individual donation is limited to 10s.

The Lancashire Aero Club.

[Sec.: F. W. Atherton, Avro Aerodrome, Woodford, Cheshire.]

Report for week ending Dec. 15.

Chief Instructor: D. E. Hall. *Voluntary Asst. Instructors*: J. C. Cantrill, J. J. Scholes. *Ground Engineers*: Bartram, Chapman. *Aircraft*: 4 (XD, PH, MQ, QL).

Flying Time: 15 hr. 35 min.; *Instruction*: 6 (3 hr. 25 min.); *Soloists (under instruction)*: 1 (2 hr.); *"A" Pilots*: 9 (7 hr.); *Passengers*: 7 (1 hr. 45 min.); *Tests*: 1 hr. 25 min.

Notes.—The Aerodrome and Club-house will be closed for the Christmas holidays from the evening of Sunday, Dec. 23, re-opening on Saturday morning, Dec. 29. The Aerodrome will also be closed as usual Monday, Dec. 31, but will be open on New Year's Day.

A rather amusing matter has come to light in connection with Mr. Gort's cross-country flight to Hooton in the course of which he lost himself and landed at Sealand. He was following Mr. Chapman on another Avian and about half-way to Hooton discovered that the other machine was rapidly drawing away from him. By flying at almost full throttle he succeeded in keeping it in sight for the next fifteen miles and it was only after following it down and landing that he discovered that he was at Sealand and that the machine which he had been chasing was a Siskin. (Nothing is being paid by A. V. Roe and Co. Ltd. for this advertisement.)

The Yorkshire Aeroplane Club.

[Sec.: Lieut.-Col. Walker, The Aerodrome, Sherburn-in-Elmet.]

Report for week ending Dec. 15.

Instructor: G. R. Beck. *Ground Engineer*: R. Morris. *Aircraft*: 3 (TB, SV, RF).

Flying Time: 10 hr. 10 min.; *Instruction*: 5 (2 hr. 20 min.); *Soloists*: 2 (40 min.); *"A" Pilots*: 7 (6 hr. 55 min.); *Passengers*: 1 (15 min.).

Notes.—The Club will be closed from Dec. 20 to Jan. 7 inclusive for Christmas and the Annual Staff Holiday.

The Midland Aero Club.

[Sec.: Gilbert Dennison, Villa Road, Handsworth.]
Aerodrome: Castle Bromwich, Birmingham.

Report for week ending Dec. 15.

Instructors: Flt. Lt. T. Rose, D.F.C., W. H. Sutcliffe. *Engineer*: W. J. Halland. *Asst. Engineer*: G. Rees. *Aircraft*: 2 (XT, LT).

Flying Time: 9 hr. 25 min.; *Instruction*: 5 (2 hr. 5 min.); *Soloists*: 16 (4 hr. 35 min.); *Passengers*: 6 (1 hr. 50 min.); *Tests*: 5 (55 min.).

Notes.—Flying was only possible on two days.

Christmas Holidays.—The Club will be closed down from Dec. 24 to 28, inclusive.

The Newcastle-upon-Tyne Aero Club.

[Sec.: J. T. Dodds, Cramlington Aerodrome, Northumberland.]

Report for week ending Dec. 16.

Pilot Instructor: G. M. S. Kemp. *Ground Engineer*: K. C. Brown. *Asst.*: J. Tait. *Aircraft*: 1 (LX).

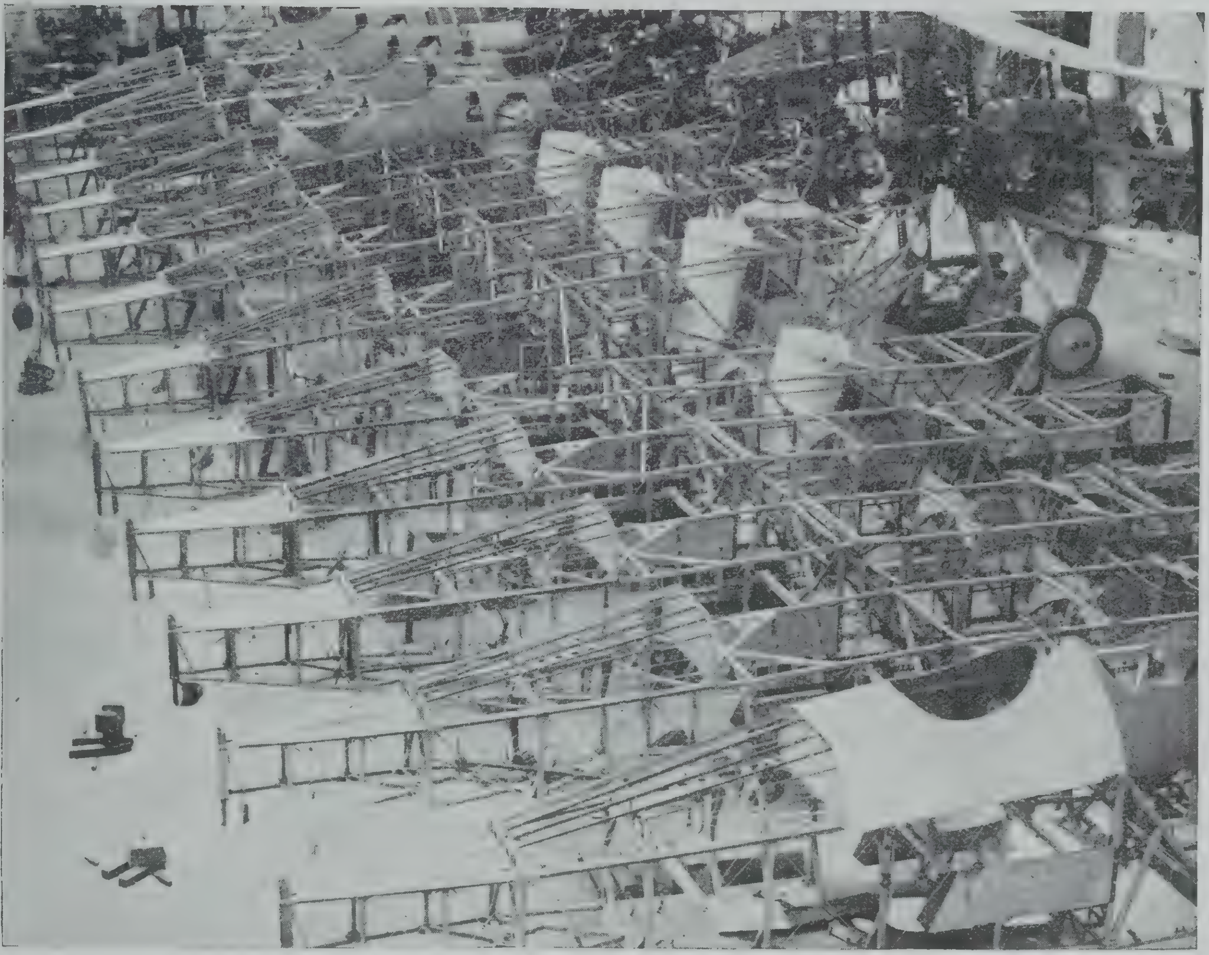
Flying Time: 8 hr. 25 min.; *Instruction*: 4 (5 hr. 25 min.); *"A" Pilots*: 2 (45 min.); *Soloists*: 2 (2 hr.); *Tests*: 15 min.

Notes.—We are pleased to report that flying started again on Wednesday, Dec. 12, this being the first since our machines were damaged during the gale in November.

On Thursday Mr. Stainthorpe was launched and on Saturday Mr. Tomkins did his first solo. These two are Mr. Kemp's first soloists since joining the Club.

The repairs to the damaged hangar are nearing completion, while alongside are being erected two small hangars for private owners. Mr.

The WESTLAND WAPITI In Production



View in Erecting Shop. Wapiti fuselage assembly line.

The Westland Wapiti with Bristol Jupiter VIII Engine is now in production for the Royal Air Force and the Royal Australian Air Force. The "all-metal" method of construction is designed for rapid production in quantities. The fuselage framework is built up of square section tubing, the joints being made by means of flat flitch plates and steel tubular rivets. The ends of the struts do not "bed" against each other or the longerons, but are allowed a small clearance, the rivets taking the load. By this means accurate fitting of the ends of the members is obviated, and "repairability" greatly facilitated. Throughout the machine, ease of maintenance and inspection has been carefully borne in mind.

Other Westland types include the "Widgeon" light 'plane, the "Wizard" high-speed single-seater fighter, etc.

WESTLAND AIRCRAFT WORKS

(Branch of Petters Limited),

Works: YEOVIL, ENGLAND.

CONTRACTORS TO THE AIR MINISTRY.

Telephone: Yeovil No. 141 (5 lines). Telegrams: "Aircraft, 141, Yeovil."

Runciman, our latest private owner, has been giving us some demonstrations in the use of slots on his Moth WT.

Messrs. R. N. Thompson and J. D. Irving are taking delivery of their new slotted Gipsy-Moths this week.

The Hampshire Aeroplane Club.

[Sec.: H. J. Harrington, The Hampshire Aeroplane Club, Hamble.]

Aerodrome: Southampton Aerodrome, Hamble.

Report for week ending Dec. 14.

Instructors: Flt. Lt. F. A. Swoffer, M.B.E., W. H. Dudley. *Ground Engineers*: E. Lenny, J. Elliott. *Aircraft*: 3 (OI, OH, VI).

Flying Time: 17 hr. 15 min.; *Instruction*: 12 (4 hr. 30 min.); *Soloists*: 2 (1 hr. 20 min.); *"A" Pilots*: 11 (10 hr. 5 min.); *Passengers*: 2 (30 min.); *Tests*: 7 (50 min.).

Notes.—Two new pilot members have joined us this week, Miss Joyce Pike and Mr. G. Villiers.

We are pleased to have our Avian back looking like new. After Miss Grace's crash at the end of August last it was sent to the Henderson Flying School for repairs and Col. Henderson himself flew the machine back on Thursday. Given flying weather we hope to add considerably to our flying time.

For the information of those members who have not recently visited the Club we should like to point out that the Staff Christmas Fund is open. The Club will be closed for Christmas holidays from Sunday, Dec. 23, to Friday, Dec. 28, inclusive.

The Bristol and Wessex Aeroplane Club.

[Sec.: Major G. S. Cooper, D.S.O., Filton Aeroplane, Bristol.]

Report for week ending Dec. 15.

Instructor: E. B. W. Bartlett. *Ground Engineer*: A. W. Webb. *Aircraft*: 2 (TV, YH).

Flying Time: 8 hr. 15 min.; *Instruction*: 4 (4 hr. 5 min.); *Soloists*: 1 (2 hr. 30 min.); *"A" Pilots*: 3 (1 hr. 5 min.); *Tests*: 5 (35 min.).

Notes.—Our members have made the most of their few opportunities this week. Mr. Rogers satisfactorily passed his test for the Royal Aero Club Certificate with a very polished exhibition.

We regret to state that two of our members, ex-R.A.F. pilots, have been reported to the Flying Committee for low flying in contravention of Club Aerodrome rules and have been suspended from flying Club machines for periods of one and three months.

The Household Brigade Flying Club.

[Sec.: R. L. Preston, Victoria Barracks, Windsor.]

Report from Oct. 1 *to Dec.* 11.

Dual: 14 hr. 15 min.; *Solo*: 29 hr. 55 min.; *Instruction (Brooklands)*: W. T. d'Eyncourt, E. L. Donner, Capt. P. Ellison, A. V. Douglas, R. L. Preston, H. R. Norman, Capt. A. d'Eyncourt; *Solo*: L. Guinness, T. Bellville, R. Quilter, Capt. A. d'Eyncourt; *Instruction (Lympne)*: E. Somerset, Packenham; *Solo*: A. V. Douglas, R. West, E. Somerset.

Notes.—The following have obtained their "A" Licences: A. V. Douglas, R. West, L. Guinness, R. Quilter and Capt. A. d'Eyncourt.

L. Guinness has bought a half-share in a Mark II Moth, G-EBVK.

Mr. A. S. Butler, who is a member of the Committee of the Household Brigade Flying Club, recently established a speed record in his Moth aeroplane, with Mrs. Butler as passenger.

The membership of the Club is now 72. A new member is Capt. The Rt. Hon. F. E. Guest, P.C., C.B.E., D.S.O., M.P., late of The Life Guards.

The Suffolk and Eastern Counties Aeroplane Club.

[Sec.: Major P. P. L. Holmes, D.S.C., The Aerodrome, Hadleigh, Suffolk.]

Aerodromes: Hadleigh, 2 miles E. from Hadleigh, Suffolk, and Conington, 8 miles W.N.W. from Cambridge.

Report for week ending Dec. 15.

Instructor: G. E. Lowdell, A.F.M. *Ground Engineers*: "A and C" W. L. Garner; "A" G. Keeley. *Aircraft*: 3 (RE, SZ, UH).

Flying Time: 14 hr. 25 min.; *Instruction*: 9 (7 hr. 10 min.); *Soloists (under instruction)*: 3 (4 hr. 10 min.); *"A" Pilots*: 1 (25 min.); *Passengers*: 4 (25 min.); *Ipswich—Cambridge Airway*: 2 trips (1 hr. 45 min.); *Tests*: 5 (25 min.).

Notes.—Mr. Welsh completed tests for "A" Licence, and Mr. Collingwood completed his height test.

Mr. Mayhew, being on the sick list, Mr. Garner, who has just returned from the Middle East service of Imperial Airways and is learning to fly with us, kindly acted as Ground Engineer.

The Club will be closed for the holidays from Sunday night, Dec. 23, to Tuesday morning, Jan. 1.

Cambridge Aeroplane Club.—Conington only worked one day and Cambridge members were given dual instruction. It is hoped that by the Spring the membership of this branch will justify at least one machine and one instructor being stationed at Conington permanently. Potential members are reminded that after Jan. 1 the entrance fee of £3 3s., which has been waived up to the present, will come into force as at Hadleigh. They are therefore advised to join up without delay.

The Marine Aero Club.—Steady progress is being made in the formation of this branch. Preliminary arrangements have been made with a firm of boatbuilders at Brightlingsea to provide the necessary facilities for light seaplanes. Mr. Lancaster Parker has promised to bring over the Short Mussel to give a demonstration during a week-end. All seaplane members who have not already obtained an "A" Licence will be required to do so on the Club's aeroplanes at Hadleigh, or Conington. Those who desire to fly at Brightlingsea during the Summer are advised to join soon. We should like to hear from all who are interested in the Marine Aero Club if they will write to Hadleigh Aerodrome.

The Liverpool and District Aero Club.

[Sec.: J. Ellis, Hooton Park Aerodrome, Wirral.]

Report for week ending Dec. 15.

Instructor: Flt. Lt. Sullock. *Ground Engineer*: B. R. Nutter. *Aircraft*: 2 (WK, XY).

Flying Time: 7 hr. *Instruction*: 10 (3 hr. 50 min.); *Soloists*: 4 (45 min.); *"A" Pilots*: 7 (1 hr. 40 min.); *Passengers*: 2 (25 min.); *Tests*: 4 (20 min.).

Notes.—Mr. Sullock has very kindly "Rallied round" at the week-ends, both Flt. Lt. Allen and Mr. Pixton being away on sick leave.

Mr. T. H. Naylor did his tests for R.Ae.C. Certificate this week in a very satisfactory manner. Mrs. Naylor took her ticket a few weeks ago, thus Mr. and Mrs. Naylor are the first married couple in this Club (and the north of England?) to become certified pilots.

There will be flying on Saturday afternoon and Sunday, and the Club will re-open for "business as usual" on the 27th. On the evening of the 27th, we hope to hold an informal "Punch party" in the Clubhouse—Salve!

The Nottingham Aero Club.

[Hon. Sec.: Cecil R. Sands, A.C.A., Imperial Buildings, Victoria Street, Nottingham. ('Phone 44014.)]

Aerodrome: Hucknall, Notts. ('Phone Hucknall 158.)

Report for week ending Dec. 14.

Instructor: Bernard Martin. *Ground Engineer*: F. H. Harley. *Aircraft*: 1 (G-AABA).

Flying Time: 8 hr. 55 min.; *Instruction*: 6 (4 hr. 30 min.); *"A" Pilots*: 5 (3 hr. 35 min.); *Tests*: 6 (50 min.).

Notes.—The fact that we still have QW out of commission, and the foggy weather we had during the week-end, have accounted for the "wee small hours" attained. Weather permitting, there will be flying throughout the Christmas Holidays, when we hope to see four members do their first solos.

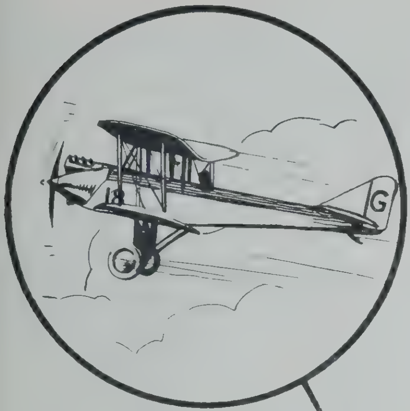
The Southern Aero Club.

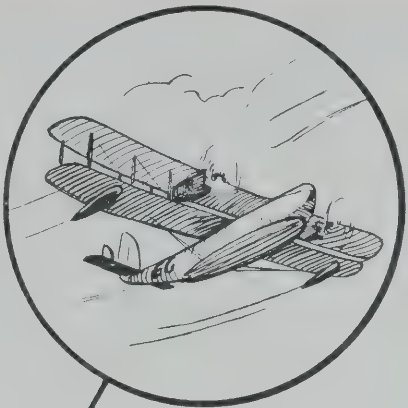
[Temp. Hon. Sec.: Miss N. B. Birkett, Shoreham Aerodrome.]

Report for week ending Dec. 16

At the end of the week we had the dual Avro G-EBYB back on service again, with top planes intact, after her damage a fortnight ago in the gales. On Sunday we managed to get in some flying, despite wind and weather generally. This is where we score over clubs using light aeroplanes, for an Avro 504K can be safely flown in quite rough weather and consequently the pilots we turn out are "all-weather" pilots. [What say ye, other Clubs?—Ed.]

ONE OF THE LATEST.—The Simmonds Spartan (Cirrus), in which all four wings are interchangeable with one another. The ailerons are also interchangeable, as are the elevators and the rudder, and the fin and tail-surfaces.





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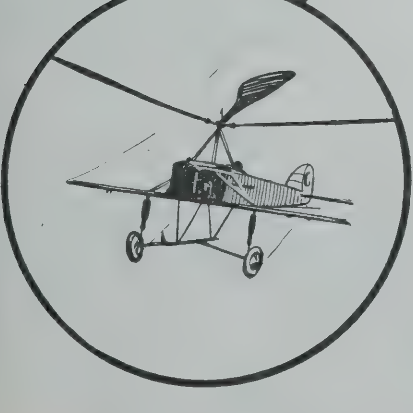

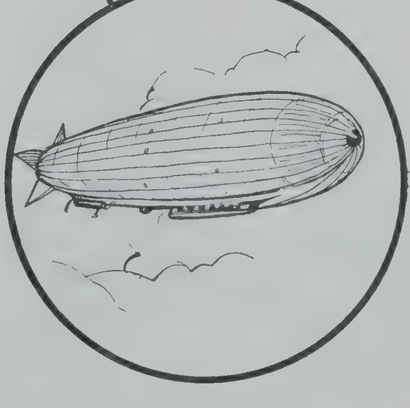

Mr. Bellairs, one of our members, has just bought a new Avian, G-AADF. He and Mr. Miles flew it back to Shoreham from Manchester on Thursday.

The buffet and luncheon bar continues to be well patronised, and is proving a most acceptable innovation.

The Cinque Ports Flying Club.

[Hon. Sec.: R. Dallas Brett, 114, High Street, Hythe, Kent.]

Aerodrome: Lympne.

Report for week ending Dec. 15.

Pilot Instructor: H. G. Travers, D.S.C. *Ground Engineer*: R. H. Wynne. *Aircraft*: 1 (NN).

Flying Time: 6 hr. 15 min.; *Instruction*: 5 (1 hr. 45 min.); *Soloists (under instruction)*: 3 (3 hr. 30 min.); *"A" Pilots*: 1 (30 min.); *R.A.F.O. (Unlicensed)*: 15 min.

Notes.—On Dec. 9 Mr. Hamilton, R.A., took his "A" Licence. He was at Hythe on a three weeks' course, which shows that we can put through officers on short courses in the depth of the Winter.

On Friday, Dec. 14, Mr. Armstrong Payn, of Deal, also did his tests, landing with engine off from 5,000 feet to within about 15 yards of the mark.

Fog stopped flying on Wednesday, Thursday and Saturday.

The Club Room inside the hangar is being furnished, and it is hoped to have the Bar working over Christmas.

Arrangements have been made to take over an X type Moth, G-EBRI, in place of the Vicomte de Sibour's Moth SS, formerly the property of the Club. RI belonged to the Duchess of Bedford. The Club hopes to have both machines, NN and RI, during the Christmas Holiday.

The Scottish Flying Club.

[Sec.: George Baldwin, Moorpark Aerodrome, Renfrew.]

Report for week ending Dec. 8.

Instructor: R. M. Stirling. *Ground Engineer*: W. Calder. *Aircraft*: 2 (YG and TY).

Flying Time: 28 hr. 5 min.; *Instruction*: 6 hr. 45 min.; *Soloists*: 13 hr. 25 min.; *Joy-rides and Tests*: 7 hr. 55 min.; *Instruction (with Mr. Stirling)*: Miss Hendry, Messrs. J. E. Young, H. W. Garbutt, A. McDonald, A. Walter, J. Mitchell, H. D. Primrose, D. K. Fairweather and A. Cairns Smith; (*with Mr. J. C. Houston*): Messrs. F. W. Murray and G. E. Muir.

Notes.—Practically nothing of interest, either with regard to flying or general matters, falls to be recorded this week. Weather conditions have been a peculiar mixture of blue skies, gales and minor snowstorms, yet, withal, our total flying time for the week is quite satisfactory.

On Monday, Miss J. Hendry completed her "A" Licence tests most satisfactorily and we look forward to congratulating her as the first lady holder of an "A" Licence in Scotland.

There was an encouraging turnout at the Club dance on Friday evening in the "Plaza," when a most enjoyable evening was spent.

Report for week ending Dec. 15.

Instructor: R. M. Stirling. *Ground Engineer*: W. Calder. *Aircraft*: 2 (YG, TY).

Flying Time: 12 hr. 30 min.; *Instruction*: 2 hr. 40 min.; *Soloists*: 5 hr. 30 min.; *Joy-rides and Tests*: 3 hr. 25 min..

Notes.—Reduced time this week is due to weather, in which the smoke of Glasgow, aided and abetted by an East wind, has been the chief offender. Apart from a successful cross-country flight to Fife, made by Mr. L. C. Davey in G-EBTY on Friday, the little flying there has been has been uneventful.

The Club will close down from Dec. 29 to Jan. 1 (inclusive) owing to Staff Holidays.

The Regina Flying Club.

[Sec.: R. A. Delhaye, 411, McCallum Hill Building, Regina, Sask.]

Report for month of November.

Since last month four more members have passed their tests for Private Pilots' Certificates, making the total for five months' operations as follows:—10 Private Pilots' Certificates. 2 Commercial Pilots' Certificates (old Pilots). 1 Air Engineer Certificate. 21 Soloists, 14 of which were Club trained. *Total Flying Time*: 475 hr.

Notes.—The Municipal hangar, which is to be the home of the Club, is nearly completed and arrangements have been made for telephone and electric light service. The Imperial Oil Co. have nearly completed the building of a filling station, with pilots' room, which they are handing over to the Club for operation for a period of five years.

Fine weather throughout the West this year has allowed the Club machines to fly daily without much hardship from cold to the Moths and their pilots.

The Club held a get-together dinner on Nov. 14 at the Saskatchewan Hotel. Eighty members were present, the dinner was good, the speeches short and few. On the whole a very enjoyable evening.

The Singapore Flying Club.

[Sec.: R. Johnstone, Singapore.]

Report for week ending Nov. 10.

Flying Time: 19 hr. 55 min.; *Soloists*: 45 min.; *Instruction*: 7 hr. 50 min.; *Air Experience*: 8 hr. 40 min.; *Joy-rides*: 1 hr. 30 min.; *Tests*: 10 min.; *Special Flight*: 1 hr.

Notes.—On Nov. 7 the *Spirit of Australia*, in which Capt. Hurley, Flt. Lt. Moir and Flg. Off. Owen are attempting to fly from Australia to England and back in 28 days, arrived and alighted on the Racecourse. It was found that it would be impossible to take off from there fully laden, so Flt. Lt. S. H. Gaskell flew Flt. Lt. Moir to Seletar in one of the Club machines in order that the pilot of the *Spirit of Australia* might have a look at the aerodrome at the Air Base. On his return Flt. Lt. Moir took the *Spirit of Australia* off from the Racecourse unladen and alighted at Seletar. On the following morning the machine got away without difficulty.

On Nov. 6 P. T. Hutchings made his first solo flight.

On Nov. 9 we were pleased to be able to welcome the Club Captain, R. Johnstone, on his return from leave in Australia.

The Aero Club of East Africa.

To the number of Light Aeroplane Clubs must be added The Aero Club of East Africa. This club arose out of the meeting of a large number of former war pilots at Nairobi on the occasion of the arrival at that place of the R.A.F. Cape to Cairo Service Flight of 1927. The sight of so many wearers of the R.A.F. tie on the aerodrome on that occasion suggested an ex-Flying Services' Association, and from this idea was born, on July 31 of that year. "The Aero Club of Kenya," which title was changed recently to "The Aero Club of East Africa," with its headquarters at Nairobi.

The patron of the Club is the Governor of the Colony—His Excellency Sir Edward Grigg; the President—Colonel A. C. E. Marsh; and there are district representatives at Arusha, Dar-es-Salaam, Kisimu, Kitale, Mombasa, Uganda, and Zanzibar.

The Club publishes a monthly journal, *Aeroken.* According to this paper the membership of the Club was 200 in July of 1928. The annual subscription is 20s.—a very moderate amount.

The ubiquitous Moth has established itself. Also one may note that one firm of merchants in Nairobi, Africana Ltd., are the agents for the Klemm-Daimler light aeroplane.

Harassed secretaries of clubs at home may console themselves that they are not alone in their troubles, for the Editor of *Aeroken*, when announcing the need of a Club crest, let forth an anguished cry asking his fellow-members to remember that "the Committee are a hard-working body and so it is sincerely hoped that the temptation will be resisted of sending designs which have as their main *motif* such things as lions with wings, hippos with floats, and rhinos with slots."

—S. G.

The De Havilland School of Flying.

Report for week ending Dec. 16.

Flying Time: 40 hr. 15 min.; *Instruction—Dual*: 23 hr. 25 min., *Solo*: 5 hr. 35 min.; *Other Flying*: 11 hr. 15 min.

Flying at Stag Lane has been greatly curtailed this week owing to the extremely bad weather conditions which have prevailed.

The De Havilland School of Flying wish all other schools a Happy Christmas and a Prosperous New Year.

FORCE OF HABIT.

The accompanying photograph shows our old friend, Mr. J. D. Parkinson, with a cup which he won at the Toronto Flying Club's Meeting. If the size of the Cup may be taken as a gauge, sporting flying must be going very strong in Canada.

Mr. Parkinson is now flying for International Airways of Canada Ltd., and has been piloting machines on the Montreal—Toronto air mail route. The note accompanying the snapshot remarks that the morning on which he wrote he had brought a Fairchild Cabin monoplane with a Wright Whirlwind engine from Toronto to Montreal, 336 miles, in 2 hours 50 mins. in a flat calm.

That is a pretty good cruising speed. But apparently the Canadian Air Transport people are not satisfied with such a speed and are looking for something to cruise about 20 miles an hour faster. Here one is entirely in agreement with them and one strongly recommends British aircraft firms who intend to compete with American products in the Overseas markets, to set out with the idea of a cruising speed of 150 m.p.h. and not the 90 m.p.h. which seems good enough for the European imagination.

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ANALYSIS OF FIGURES FOR THE PAST WEEK.

Trips per Day.—Sunday, 6; Monday, 13; Tuesday, 9; Wednesday, 0; Thursday, 14; Friday, 15; Saturday, 13.

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London—Paris—Zurich; London—Ostend—Brussels—Cologne and return : Machines 31, passengers 177, freight 10 tons.

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Paris—London and return : Machines 13, passengers 18, freight 14 tons.

K.L.M.
Amsterdam—Rotterdam—London and return : Machines 10, passengers 29, freight 3 tons.

SABENA :
Brussels—London and return : Machines 7, passengers 15, freight 2 tons

DEUTSCHE LUFTHANSA A.G. :
Amsterdam—London and return : Machines 9, passengers 11, freight 1 ton.

MISCELLANEOUS :
British machines 0, passengers 0.
Foreign machines 0, passengers 0.

Total number of trips by British Machines, 31, carrying 177 passengers. Foreign Machines, 39, carrying 73 passengers.

COMPARATIVE FIGURES.

Week ending Dec. 15 :
Machines, 70; Passengers, 250; Crews, 140; Total personnel, 390.
Corresponding week, 1927 :
Machines, 84; Passengers, 244; Crews, 149; Total personnel, 393.
Corresponding week, 1926 :
Machines, 54; Passengers, 120; Crews, 65; Total personnel, 185.
Corresponding week, 1925 :
Machines, 42; Passengers, 110; Crews, 51; Total personnel, 161.
Corresponding week, 1924 :
Machines, 35; Passengers, 82; Crews, 39; Total personnel, 121.
Corresponding week, 1923 :
Machines, 51; Passengers, 87; Crews, 77; Total personnel, 164.
Corresponding week, 1922 :
Machines, 52; Passengers, 168; Crews, 100; Total personnel, 268.
Corresponding week, 1921 :
Machines, 49; Passengers, 108; Crews, 73; Total personnel, 181.
Corresponding week, 1920 :
Machines, 10; Passengers, 9; Crews, 18; Total personnel, 27.

Croydon Notes.

Fog is everywhere depressing enough, but if you should meet someone who has evidently plumbed the deepest abyss of human misery during a period of fog you may be sure that he is a denizen of Croydon Aerodrome. Recently, every Company had to operate services in and out from Penshurst, sending passengers and goods to and fro by road which was a matter of hours, whereas by air Penshurst can be reached from Croydon in about ten minutes.

When there is fog about, Croydon collectively gets quite nervous. London Offices adopt a distinctly cold and unfriendly attitude over the 'phone, and their pitying superior attitude makes Croydon believe that the fog is entirely due to their own miserable ineptitude. Meteorological Officers no longer carol blithely as they let off their coloured balloons from the roof, but slink furtively about the place, like cats conscious of ill-doing.

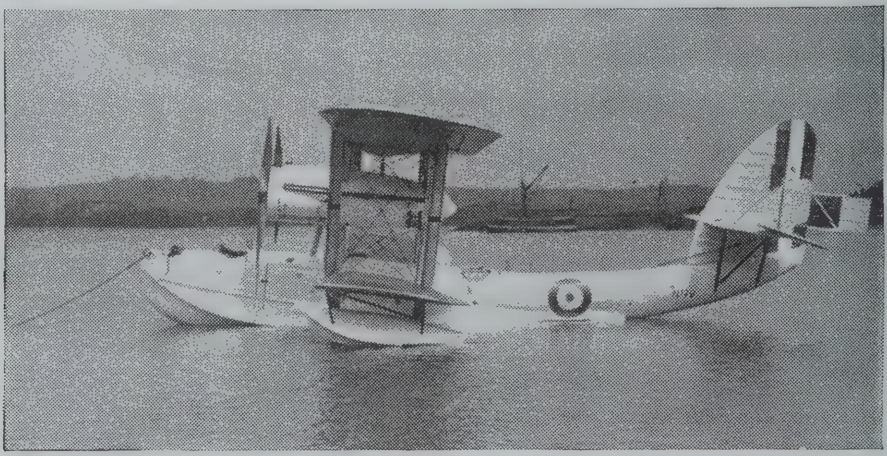
Bad weather conditions upset the nerves of the best of the Croydon folk, and even the pilots, most reasonable of men, are subject to fits of almost girlish petulance at times. Not long ago, they say, a certain pilot whose name and nationality must remain a secret, expressed a very definite determination not to fly that day. A wily groundsman approached him with the observation " I suppose you won't be flying to-day," to which he retorted " Oh, I won't, won't I?" and promptly took the air in the teeth of a slight ground mist to the consternation of all concerned.

Mr. Smirnoff, of the K.L.M., who recently made the return trip Amsterdam—Batavia, with a three-engined Fokker (with Bristol Titan engines), is understood to have flown for more than eight hours on two of his three engines, during the course of the trip.

Mr. " Taffy " Evans, long the C.I.D. officer at the Aerodrome, paid a visit to the scenes of his former triumphs a while back. He is very much thinner and his receipt for this happy state of things is simplicity itself and not at all painful. " Give up beer altogether," says Taffy,—and drink Scotch.

Not long ago, a K.L.M. machine on its way to Batavia was obliged to land because the wing was covered with 7 centimetres of ice, which not only increased the weight considerably, but played all manner of tricks with the flying capacity of the wing. This happened somewhere near Erfurt, in Germany, and is a most unusual occurrence.

We understand that Mr. Smith of the Surrey Flying Services, who will be remembered as having met with an accident some weeks ago, is progressing so favourably that he will be able to spend Christmas at home.—X.



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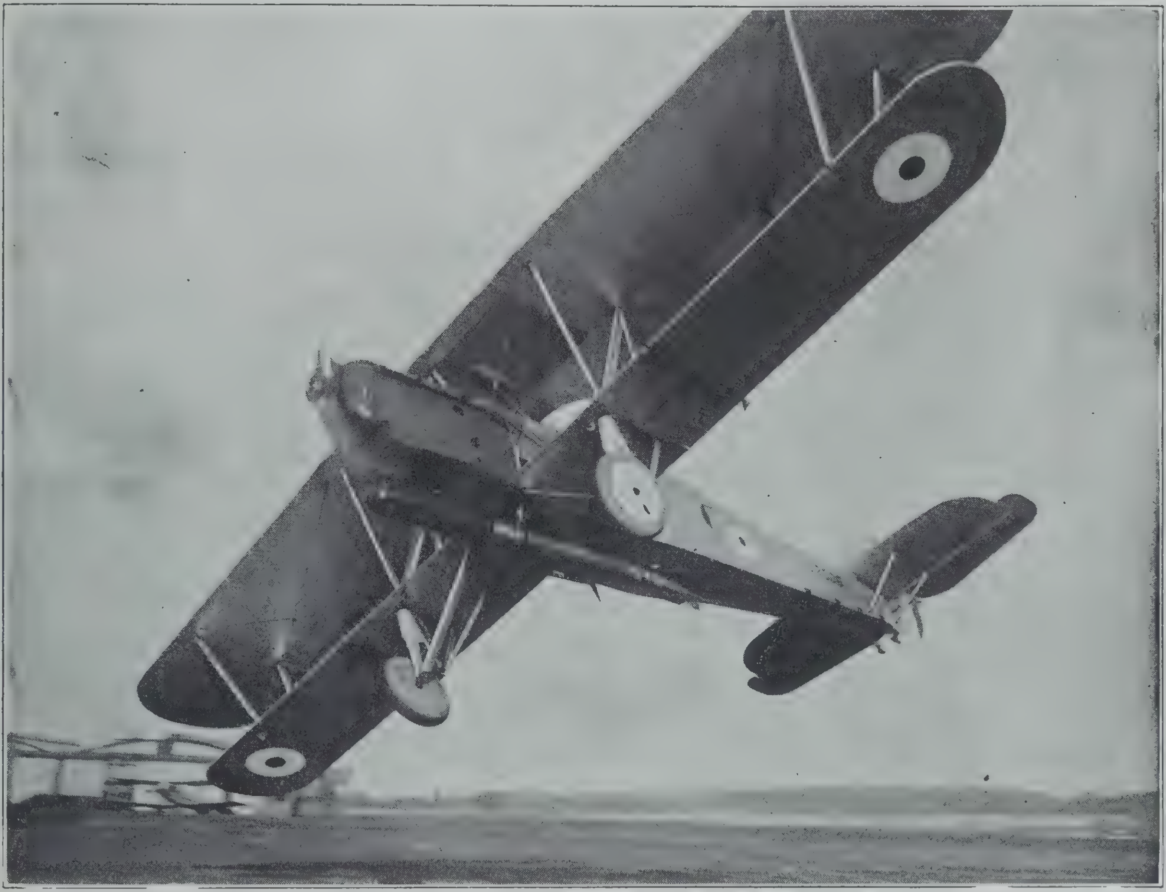

"*Flight*" Photo.

"The Hawker 'Horsley' Torpedo Bomber as illustrated is now in production. The machine meets in every respect the exacting requirements of torpedo carrying aircraft and can be considerably overloaded without impairing efficiency."

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POLISH CIVIL AVIATION.

At the close of the current year the two existing Polish civil air transport companies, the Towarzstwo "Aero" and the Towarzsto "Aerolot" will be taken over by the Government.

A new company, to be known as the Towarzsto "Lot" will be formed, in which the State will own 60 per cent. of the shares and the local authorities the remaining 40 per cent.

The new company will absorb all the equipment of the two old companies, consisting of twenty existing aircraft and six Fokker F-VIIs, which are now on order, construction and repair sheds, aerodrome equipment, etc. Subsequently only machines of home manufacture will be bought, and simultaneously subsidies will be granted in support of home output of aircraft.

SPANISH CIVIL AVIATION.

A monopoly for commercial air traffic in Spain with an annual Government subsidy of 3,000,000 pesetas (£100,000) has been allocated to a Spanish group formed for the fusion of the two existing companies at present exploiting the Madrid—Lisbon, Madrid—Seville, and Madrid—Barcelona routes.

These companies are the Union Aerea Espanola and the Iberia, Compania Aerea de Transportes, both of which use German aircraft.

PERSONAL NOTICES.

MARRIAGE.

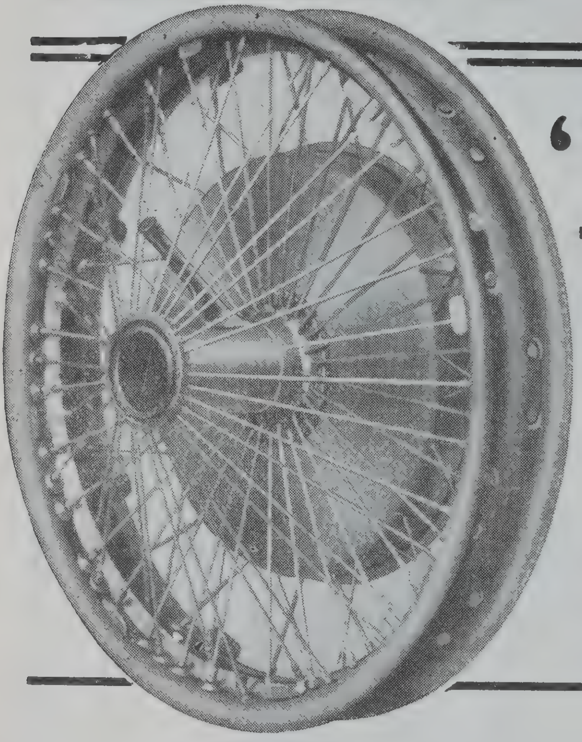
McDONALD—GRAY.—On Dec. 15, at St. Luke's Church, Grayshott, Arthur W. B. McDonald, R.A.F., elder son of Dr. and Mrs. McDonald, of Antigua, to Mary, eldest daughter of Dr. and Mrs. Ronald Gray, of Hindhead.

FORTHCOMING MARRIAGES.

BROWN—STANBURY.—The engagement is announced between Flg. Off. Keith Kendle Brown, R.A.F.O., elder son of Mr. D. W. Brown, Southgate, Middlesex, and Miss Gwendolyne Stanbury, elder daughter of Mr. and Mrs. F. B. Stanbury, Coolinge Lodge, Folkestone.

COTTERELL—BLACK.—An engagement is announced between Capt. George Cecil Blencowe Cotterell, late Nigerian Political Service and R.A.F., eldest son of the late Morton Blencowe Cotterell and of Mrs. Richard Bond, Bryancliffe, Wilmslow, and Mary Wanklyn, younger daughter of Mr. and Mrs. John Black, British Linen Bank, Wigstown, Scotland.

DRUMMOND—DRAKE-BROCKMAN.—An engagement is announced between Sq. Ldr. R. M. Drummond, D.S.O., O.B.E., M.C., R.A.F., elder son of Mr. and Mrs. J. M. Drummond, of Cottesloe, Western Australia, and Isabel Rachael Mary, only daughter of the late Paris F. Drake-Brockman and Mrs. Drake-Brockman, of Cintra Park, Norwood, London.



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THE AEROPLANE—DEC. 26, 1928.

ABOUT 1928.

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Edited by C. G. Grey

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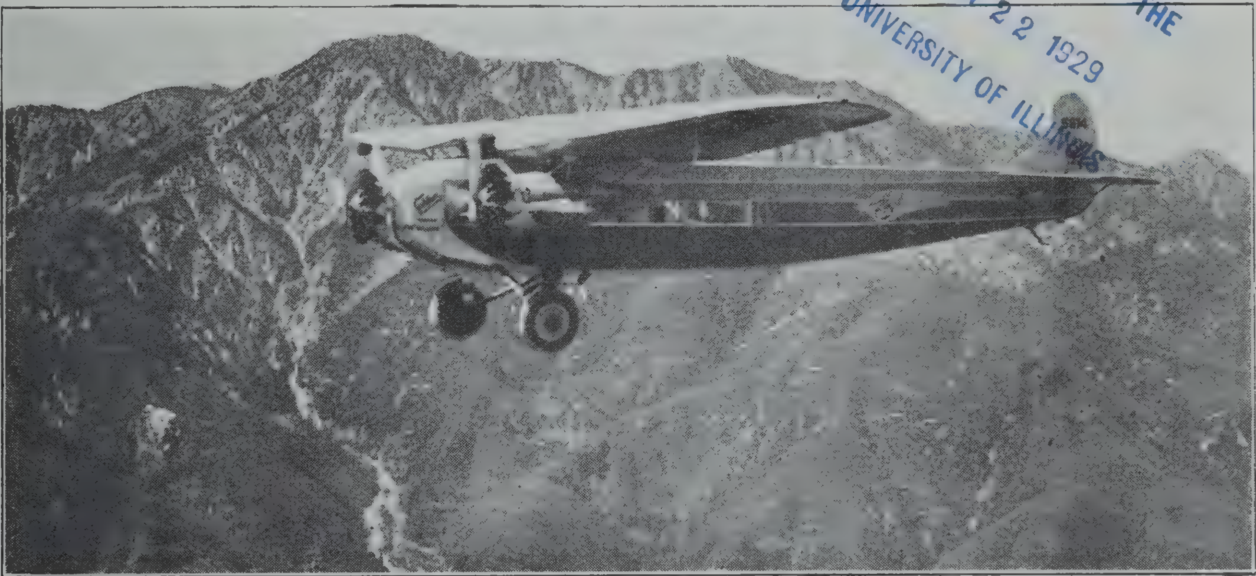

IN THE MOUNTAINS:—A Fokker F-10 monoplane (Three 425 H.P. Pratt and Whitney "Wasp" engines) flying among the Sierra Madre Mountains near Los Angeles, California.

EXPERIENCE IN 1928—THE GUIDE FOR 1929

In 1928 Colonel FitzMaurice, speaking of his Atlantic flight, said:—"*Never again would I go in a machine not equipped with wireless. If ours had had wireless we should have landed in New York instead of Labrador.*"

Captain Courtney, saved from the Atlantic, said:—"*Rescue entirely due Marconi Wireless.*"

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DEC. 26, 1928.

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Incorporating
Aeronautical Engineering

VOL. XXXV
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ON 1928.

Taking it all round 1928 has been rather a wonderful year. Though the long hoped-for boom in aviation has not yet begun, there have been right through the year unmistakable symptoms that it is coming. These symptoms are exactly those which have prepared the way for all other booms in locomotion.

In the earliest days of all locomotive development the pioneers have been told that they were merely inventing a new way for people to kill themselves. Then highbrowed scientists proved that the new vehicle could never work, or that if it did work it could never be of any practical use. There is the never-to-be-forgotten example of the article in a scientific magazine which proved mathematically that no steamship could ever cross the Atlantic,—which article unfortunately appeared in print the week *after* a steamship had actually done it.

The next stage has been the coming into the movement of a few sporting enthusiasts and a few business men who had enough foresight to see that the crude vehicles of the time could in the future be developed into practical means of transport. And they have produced rule-of-thumb improvements.

Then has come the early practical transport stage, in which the newspapers instead of encouraging the growing business have concentrated on alarmist articles about its dangers. The burning of steamships, railway wrecks, bicycle accidents and motor accidents all in turn were given blazing headlines, while actual achievements were only given a few lines in odd corners,—because newspaper editors are invariably several years behind the intellectual development of their public, simply because they sit in offices and vegetate instead of going out to see what is happening, with the result that their intelligent young reporters are compelled to write down to the mental level of their editors instead of up to the development of the public.

The success of any given method of transport has only come when people have become so accustomed to being killed by that particular form of transport that fatal accidents have ceased to interest editors of newspapers, and have been pushed away into the odd corners which were formerly occupied by the outstanding achievements of those particular vehicles. But we must admit that this state of indifference to fatal accidents is only reached when fatal accidents happen in a very minute percentage of journeys made and only once per many thousands of miles covered.

EARLY DAYS OF FLYING.

The oldest hands in aviation can remember aerial locomotion going through all these stages. Our younger aviators, who were small children at school when war-flying on a large scale ended ten years ago, can only remember this last stage of all. They can remember when in their early newspaper-reading days a really wholesale crash to what the papers used to delight in calling a "giant air-liner" was worth big headlines in even the most respectable papers.

To-day such an accident would be perhaps worth one poster to each of the evening papers, in competition with the latest cricket-match down-under, or cup-tie at home, or a horse race result or something of that sort. We have in fact reached the happy stage in which aeroplane accidents no longer top the bill. That means that even newspaper editors accept the aeroplane as a normal vehicle of transport.

THE COMING BOOM.

The next stage will be very interesting. Aviation will probably be more or less neglected by the newspapers, except for reports of sporting events such as the King's Cup Race and the Schneider Trophy Contest,—and probably for wildly inaccurate reports of impossible achievements by improbable inventions. But after that, probably four or five, but possibly only two or three, years hence there will be a financial boom in aviation. And then the posters will blazen forth, and the papers will be full of headlines about, fortunes made in a day in shares in aircraft firms. This has happened already in this country in all existing forms of transport, it has actually been happening during 1928 in the United States. There they have already reached the stage of trusts and mergers and combines running into millions of pounds and tens of millions of dollars. Some of these colossal deals were noted in THE AEROPLANE last week and before.

The history of railways and cycles and automobiles in the States teaches us that all this trustification and merging means a very big boom for a few years and a horrible slump afterwards. So people in this country who are wise and who want to make money out of aircraft when the boom comes in this country will do well to keep a very close eye on the aircraft market in the United States so as to get from it a line on how to juggle with shares when the boom comes here.

But before this financial boom comes we are going to have an ordinary useful boom in the manufacture, sale and operation of aircraft as such. And that is where 1928 has been leading us.

OUTPUT.

Undoubtedly the outstanding feature of 1928 has been the enormous increase in the use of civil aircraft not only in this country but all over the World. In the United States authoritative calculations estimate that something over 5,000 aeroplanes have been built during the year, and all of those, but for a very few hundreds, have been civil aeroplanes. And there is the very interesting fact that practically all of them have been bought for use in the United States.

The number which have gone to Canada, although they would have been a very nice addition to our national income if they had been built in England, is a very small percentage of the number built in the United States. Just a few have been sold in Australia and in South America. But for practical purposes the whole output of the American aircraft factories has been absorbed in America. And according to the most reliable estimates practically the whole of next year's output will also be absorbed in America.

In England though our output has been nothing like American output, we have really done remarkably well, considering the small number of firms in the Aircraft Industry and the small amount of capital invested in aircraft production. No figures are available for our output except those of the De Havilland Company, but some sort of idea can be given of what our firms have been doing during the year. Let us take them in alphabetical order so that there may be no question of favouritism.

WHAT OUR AIRCRAFT INDUSTRY HAS DONE.

A.D.C. AIRCRAFT LTD. have sold quite a lot of their disposals stock, though unfortunately, from the point of view of the general progress of British aviation, they have not built aircraft of their own. On the other hand the firm have done an enormous amount of business in Cirrus engines. Considering that until a few months ago practically every light aeroplane in this country and most of the light aeroplanes in the rest of the World, except in America, have had Cirrus engines, and considering that a number of spare engines have also been bought, the total number of Cirrus engines built during the year must have run somewhere up in the direction of a thousand.

SIR W. G. ARMSTRONG WHITWORTH AIRCRAFT LTD. of Coventry have been building Siskins and Atlases in quite large quantities for the Air Ministry, besides experimental machines and some new Argosies for Imperial Airways Ltd.

With this must be included the allied firm, **ARMSTRONG SIDDELEY MOTORS LTD.**, which, as mentioned in THE AEROPLANE recently, has been turning out something over twenty engines a week taking in Jaguars, Lynxes and Genets.

A. V. ROE AND CO. LTD. have been building Avro-Lynxes in large numbers for the Air Force and for a number of foreign Governments. And in addition they have made some dozens, if not hundreds, of Avians, which have been bought not only by our own Flying Clubs but by all the British Dominions and by the United States.

Unfortunately the Avro Ava, one of the finest twin-engined machines ever produced, did not find favour in the eyes of the Air Ministry.

The Avro Alpha engine, which had just reached the stage of being ready for production when the controlling interest of the firm was acquired by Mr. J. D. Siddeley, may or may not be produced in the future. But one gathers that the designs have been acquired by an influential syndicate in the United States.

William Beardmore and Co. Ltd. have, one is informed on good authority, decided to give up aircraft construction. But there seems every likelihood of their going ahead with their heavy oil aero-engines which have now reached the stage of being fit for use.

The Blackburn Aeroplane and Motor Co. Ltd. have had two outstanding achievements to their credit in the past year, at opposite ends of the scale. The little side-by-side Bluebird light aeroplane, which in its original form took the fancy of many experienced pilots, has done so well that it has now been re-designed and will in future be built entirely of metal. In its re-designed form it has a very much improved performance. One is told that it has been made a production job which can be sold at a price to compete with anything else of its class on the market.

The firm's other great achievement is the Iris flying-boat which has proved itself on test to be unsurpassed among the sea-going ships of its class.* The voyage of the Iris (three Condors) which took Sir Philip Sassoon to India and back also demonstrated the excellence of this ship. And the firm now have a number of these big boats in process of construction. Thus they are reaping their reward for the long series of expensive experiments which the Blackburn people have carried on. Also they have been doing very well with their torpedo-dropping machines and training machines.

Boulton and Paul Ltd., who have for years been working on the development of all-steel construction, have achieved success with the Sidestrand day bomber (two Jupiters) which is the first of their machines to be put into production. Mr. J. D. North has devoted himself to steel construction for many years and this success is well-deserved.

The Bristol Aeroplane Co. Ltd., the first limited company in this country ever to be formed for the construction of aircraft, have received a production order for the all-steel Bulldog (Jupiter) as the standard high-speed fighter of the R.A.F., and have also been doing good business abroad with up-to-date versions of the ever-green Bristol Fighter. But, naturally, the Bristol Company's biggest business has been done with the Jupiter engine, the first really successful high-power static radial engine ever produced.

To-day the Jupiter engine in its various forms is certainly manufactured in larger quantities and in more countries than any radial engine in the World, even including the most popular American engines. And the new Bristol Titan, especially in its geared version, seems likely to compete with the Jupiter in popularity.

The Fairey Aviation Co. Ltd. have, by all accounts, had the best year in their history, which has consistently been a history of success. Mr. Fairey's policy of troubling himself very little about Government specifications, and depending on his own judgment of what the air forces of the World are most likely to want, has again been thoroughly justified.

The latest modification of the famous Fairey III type, to wit the Fairey IIIF, is probably the only two-seater general-purpose war machine in the World which competes in quantity production with the Breguet. On wheels or on floats the IIIF is used by the Fleet Air Arm, either as a seaplane or as a deck flyer. It is used by the land-going R.A.F. as a bomber or a reconnaissance machine or almost anything. It has been sold in quantities to the Chilian Government and to the Argentine Government and to the Irish Free State Air Force. In fact it has been distinctly one of the outstanding successes of 1928.

The Fairey Fox, which is quite one of the most popular machines among R.A.F. pilots, has not been built in quantities this year because of the agitation against the use of the American Curtiss D.12 engine. Originally this engine was to have been built in this country but adequate reasons prevented this from being done. But a new version of the Fox with the Rolls-Royce F.XI engine made its first public appearance at the R.A.F. Display this year, and its performance is such that it is likely to be built in quantities.

Over and above this, there seems likely to be a single seater Fairey machine with the F.XI in it which, judging solely by the habitual development of Fairey design, is likely to come as something of a shock to Service aviators all over the World.

And there is the great monoplane now flying at Cranwell.

The Gloster Aircraft Co. Ltd. have produced during the year numbers of Gamecocks (Jupiters), which is one of the standard single-seat fighters in the R.A.F. Also a great deal of interesting development-work in all-metal construction has been done by the firm. Their latest development is to move the whole of their aircraft work from Cheltenham to their aerodrome at Brockworth, where an entirely new plant has been laid down for the building of all-steel machines, thus cutting themselves entirely adrift from woodworking.

The De Havilland Aircraft Co. Ltd. stand out from the whole of the rest of the British Aircraft Industry in having devoted themselves entirely to civil aircraft. The Hound, which had the highest performance of any machine in the R.A.F. Two-Seater Competition, was not thought acceptable by the Air Ministry. And the firm has quite lost interest in Service Aircraft. But by way of compensation they have turned out just about 300 Moths during the year and, as regular readers of this paper know, they are putting up new workshops at an amazing pace.

Though the Gipsy engine made its first appearance only a little over a year ago and though production only began about the middle of this year, something like 150 of these engines have already been built at Stag Lane.

Besides the all-pervading Moth the firm have built a number of D.H. 61s., and are building three machines of the Hercules type (three Jupiters) for Major Brearley of West Australian Airways.

The H. G. Hawker Engineering Co. Ltd. having had remarkable success with the Horsley (Condor) have in the past year specialised on their own particular method of all-steel construction. The Hawfinch (Jupiter) single-seat fighter, built on this system, has put up a remarkable performance, and the method of construction is so simple that it is essentially suitable for mass production. A number of foreign Powers are interested in the machine and big orders may be expected with confidence.

Quite recently the firm have produced a particularly interesting little two-seater training biplane with an Armstrong-Siddeley Mongoose engine. Details of this machine may not be disclosed, but it is likely to prove one of the noteworthy products of 1928.

Handley Page Ltd. have acquired during the year even greater international fame, through the coming into general use of the Handley Page Slot, than they did during the War with their bombers and after the War with their passenger machines. Practically every nation is experimenting with slots under the Handley Page patent, and every aeroplane used by the R.A.F., with the exception of high-speed fighters, either has been or is to be fitted with slots.

So far as manufacturing is concerned the firm have turned out a number of twin-engined machines either with Napier engines or with the new geared Bristol Jupiter, and these seem to be very popular with their pilots.

George Parnall and Co. have not been much in evidence during the past year, but they have built several interesting experimental machines, and one gathers that their works have been kept busy by sub-contracts.

S. E. Saunders Ltd. have chiefly been doing experimental work. Within the last few weeks Mr. A. V. Roe and Mr. John Lord have acquired a big interest in this firm, which will in future be known as A. V. Roe and Saunders Ltd., and one gathers that the new firm's intention is to build a big flying-boat on novel lines.

Short Brothers Ltd. have achieved particular distinction during the year through the outstanding success of the Short Singapore (two Condors) and the Short Calcutta (three Jupiters). Though these big flying-boats have not yet been produced in quantities there is no doubt that in their latest form with all-metal hulls they will be largely used. Three Calcuttas have already been delivered to Imperial Airways Ltd. for use on the Mediterranean section of our Imperial airway. And there is also a probability that others will be used in the Persian Gulf.

Besides these, Short Brothers Ltd. have built very large numbers of all-metal floats of their own particular design for various firms but especially for the De Havilland Company. And so Mr. Oswald Short will soon be reaping his reward for the bold course which he took some years ago in concentrating on all-metal construction.

Simmonds Aircraft Ltd. are newcomers to the Trade in the past year. Their Spartan biplane is to the untrained eye very much like any other good biplane in the light aeroplane class. But Mr. Simmonds has patented the ingenious idea of using wings of symmetrical section so that only one standard type wing is needed,—the same wing doing for top or bottom, left or right. The two ailerons are also interchangeable, likewise the rudder is interchangeable with either elevator flap, and the fin is interchangeable with either side of the fixed tail-plane.

The machine has about the same performance as any other machine of its type with a similar engine and it has the very obvious advantage that dealers or users only have to keep in stock as spares four different types of aerofoil instead of the ten which are necessary for the ordinary type of biplane. The first batch of production machines are now just about finished and they have all been ordered, as have a number of others for future delivery.

The Supermarine Aviation Works Ltd. have become more than ever World-famous during the past year through the achievements of their Southampton flying-boats (two Napier Lions). The journey of the Far East Flight, R.A.F., in four all-metal Southamptons to Singapore, round Australia back to Singapore, and thence to Hong Kong and back is one of the World's greatest achievements and it is

Proved beyond doubt!

"IT IS interesting to note, as showing the remarkable reliability of the Napier aero engine, that the 'Lion' engines used by Imperial Airways on their Continental service in 1925 were overhauled every 250 hours. In 1926 this had been increased to 300 hours, and, in September, 1927, the time between overhaul of engines was as much as 325 hours. Many of the engines used by Imperial Airways exceed this period, one having run for 478 hours (47,800 miles) before being dismantled. When one considers the strenuous work of these engines on the Continental services, day in and day out, and realises they have all been in use for a number of years, it will be agreed that the amazing reliability and long life of the Napier 'Lion' aero engine has been proved beyond doubt."

Flight, 6·12·1928

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certainly the greatest performance ever put up by flying-boats.

To the Supermarine Company also belongs the credit for having beaten the existing World's Speed Record, though unfortunately the existing record was not beaten by a big enough margin for the performance to stand as a World's Record.

A few weeks ago the controlling interest in the Supermarine Company was acquired by Vickers Ltd. and Squadron Commander James Bird, who has piloted the firm to its present remarkable state of success, is now a Director of Vickers (Aviation) Ltd.

Vickers (Aviation) Ltd., though not much has been heard about them during the past year, have been doing some very remarkable work in the development of duralumin construction. The method evolved by Mr. Rex Pierson and Mr. Maxwell Muller is quite one of the simplest possible, in that by it aircraft of the largest size can be produced with quite a small amount of machinery and almost entirely unskilled labour. Figures are not at the moment available to show the difference in performance between the all-metal Virginias and the old wood-built craft, but one has been told that it is quite remarkable. One can at any rate say that the all-metal Virginia with geared Jupiter engines has with full load a Service ceiling just twice that of the standard Service machine.

The Vickers firm have built a number of single-seat fighters under Wibault patents for foreign nations, and they have supplied a number of their Valparaiso biplanes to the Portuguese Government, two of which made a very remarkable voyage from Lisbon to Portuguese East Africa.

The Westland Aircraft Works come alphabetically last but are by no means least. After having had rather a bad time for a number of years they have been very busy all this year building Wapitis (Jupiters) for the R.A.F., to replace the old D.H.9a. These machines are all-metal and are particularly popular with pilots because they are so easy to control

Owing to the rush of orders for Wapitis the Westland people seem somewhat to have neglected the Westland Widgeon, which is regarded by those who have flown it as quite one of the best light aeroplanes in the World. One is told, however, that the firm has no intention of dropping the type, so we may expect to see big developments in this direction in the future.

During the year the firm produced the Westland Wizard (Rolls-Royce FXI engine) which when it appeared at the R.A.F. Display, astonished beholders. Whatever may have been built since elsewhere it was then certainly the fastest single-seat fighter in the World.

So far it has not been ordered by the R.A.F., and one has heard that test pilots object that it has a limited view as a fighting machine. Against that there is the equally sound argument that so long as you can see straight ahead and are about 40 miles an hour faster than anything else in the air there is no need to worry about an adequate view for dog-fighting.

There are rumours of other interesting developments at Yeovil, such as a cabin monoplane with three Cirrus engines, and a machine called the Westland Witch, which is terribly secret.

Aero-Engines

Outside the aircraft manufacturing firms, three of which are also aero-engine manufacturers as already noted, there are two other aero-engine manufacturers.

D. Napier and Son Ltd. are famous for the Lion engine. Whether on war machines or air-transport machines the Napier Lion has increased during 1928 the high reputation which it has built up in the past ten years. In the service of Imperial Airways Ltd. Napier engines have covered hundreds of thousands of miles with a minimum of trouble. In the R.A.F. the Napier engines used by the Far East Flight have put up a performance hitherto unequalled by any engine in the World. That eight engines of one make should have covered together such a distance with so little work to be done on them is certainly a World's record. Over and above these performances there is the winning of the Schneider Trophy and the beating of the existing World's record, also to the credit of the Lion. The Napier Company can justly be proud of the fact that whether for hard continuous slogging or for short bursts of phenomenal speed the Napier has proved itself a record-breaker.

One can safely prophesy that the Napier Company have not reached their limit with the Lion engine. There are rumours of a high-powered air-cooled engine, now running in the Napier Works, which applies in an entirely new way a number of well-tried principles in aero-engine construction. When it appears in public it is likely to cause something of a sensation.

Rolls-Royce Ltd. have also increased their reputation during the past year. The new F.XI, the most up-to-date development of the famous engines which did such extraordinarily fine work in Bristol Fighters and D.H.4s during the War in 1917 and 1918, has already put up performances which show that weight for power it is right in the front rank, and much is likely to be heard of it in the near future. The Rolls-Royce Condor has done good work during the year. It has been used in all the Hawker Horsley bombers, but its greatest achievements have been the voyage round Africa made by Sir Alan and Lady Cobham in the Short Singapore and the voyage to India and back in the Iris which took Sir Philip Sassoon on his remarkable tour.

Auxiliaries.

There is not enough space in The Aeroplane to discuss the equally remarkable progress which has been made by the auxiliary and ancillary trades concerned with aircraft. But something must be said of them.

Duralumin, which is now largely used for aircraft construction all over the World, is primarily a British product. And one believes that the bulk of the World's output of duralumin is now used in aircraft.

In steel construction we are ahead of all nations. British steel tube made by Accles and Pollock Ltd. and the Reynolds Tube Co. Ltd. are recognised everywhere as the best in the World.

A number of the great steel manufacturers who specialised on high-tensile steel for aircraft during the War 1914-18 have very foolishly ceased to take an interest in the aircraft business. Those who have had the sense to continue their interest in it will be handsomely rewarded in the future.

Firms who manufacture steel fittings and specially manipulate steel for aircraft, such as Rubery Owen and Co. Ltd., and Brown Brothers Ltd., have done excellent business during the past year. They also are regarded in all countries as leaders in their own particular line of business.

Another metal in which we in this country have been particularly successful is anti-friction metal for bearings. Here the Hoyt Metal Co. Ltd. are pre-eminent. There can hardly be an aero-engine built in this country which does not use Hoyt products in one way or another.

Wherever wood is used in aircraft we are equally well supplied by British firms. Mallite plywood is unsurpassed by any foreign product and William Mallinson and Sons Ltd., who are the parent firm of this product, see that we have the best timber where plywood is not used.

In aircraft instruments we also hold our own. Henry Hughes and Sons Ltd. and S. Smith and Sons Ltd. are everywhere regarded as supplying the best navigating instruments, meters, gauges and so forth.

The Williamson Manufacturing Co. Ltd. have during the year perfected the World's best camera for air survey work. Which suggests naturally the statement that our two air survey firms, the Aircraft Operating Co. Ltd. and the Air Survey Co. Ltd., have so proved their efficiency that each is either actually doing or is negotiating for survey contracts altogether outside the British Empire.

To revert to aircraft construction, in all other lines British products hold first place. Cellon, Titanine and British Celanese doping systems, varnishes, enamels and so forth are used by nearly all nations, even though our prices may be higher than foreign products.

On the electrical side we are holding our own quite well. The World at large uses Marconi Wireless for all kinds of signalling. Also in quite a different line, K.L.G. Plugs have to their credit quite a nice collection of World's records and any number of long flights. On the same line, British Thomson-Houston magnetos have many fine performances to their credit.

Where fuel is concerned, Shell and Pratt's petrol seem to divide all the World's records and long flights between them, and Wakefield Castrol seems to be the standard lubrication for everybody

The tyre business is still chiefly in the hands of Palmer Tyre Ltd., the first firm who specialised on tyres for aircraft. And now the Dunlop Rubber Co. Ltd., the oldest makers of pneumatic tyres in the World, are introducing new ideas in the way of complete wheel units including tyres, wheels and brakes.

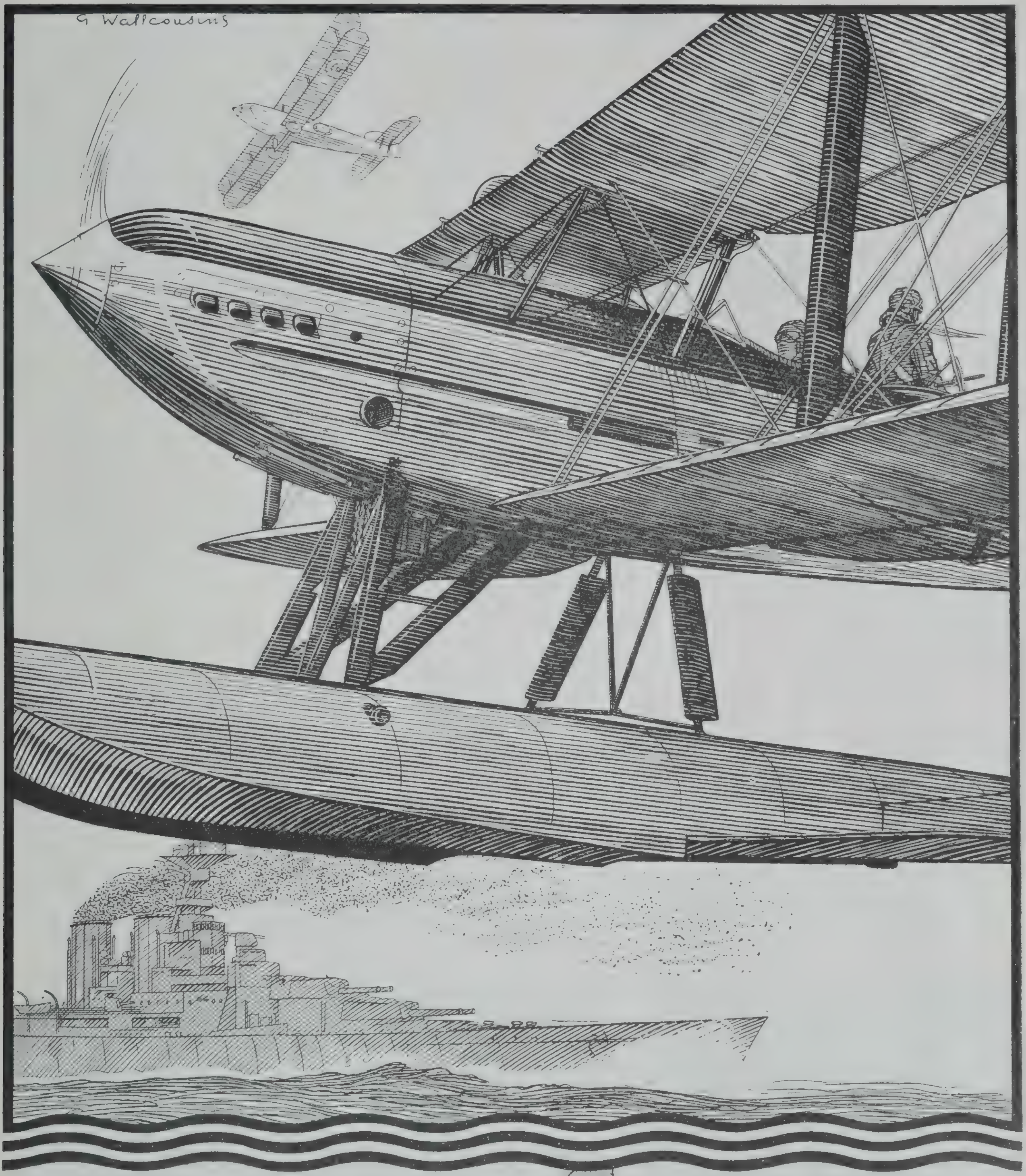
Where We Are.

Taking it all round, the British Aircraft Industry can feel very well pleased with itself, for we can claim, fairly safely, that we import practically nothing for our Aircraft Industry with the exception of the actual raw material for steel, aluminium and bronze products, raw timber and raw rubber. Whatever we may be in other trades, in aircraft we are self-supporting, and our exports are rising.

How long the exports will continue to rise depends entirely on the individual intelligence of our aircraft manufacturers.

In the uses of aircraft we are decidedly on the up grade. Imperial Airways have done more flying and have carried more passengers and goods than in any previous year. And they hold their lead over all foreign air lines between England and Europe. Also they have paid a dividend.

The mileage covered by hired aircraft, whether chartered from Imperial Airways or hired from air taxi firms, has increased enormously.



FAIREY
AIRCRAFT

THE FAIREY AVIATION COMPANY LTD., HAYES, MIDDLESEX.

The number of private owners is very much greater than it was a year ago. Club flying has also increased greatly, partly because we happen to have had a decent Summer, but still more so because of the skill and industry of the Club pilots and the Club ground-engineers.

All kinds of new and unexpected people have come into aviation during the past year. As THE AEROPLANE prophesied a year or two ago, the lad and lass of the village, finding that the sports car is no use on our crowded roads, is taking enthusiastically to flying. And before long their motor-cars will merely be aerodrome tenders. Serious business men are using aeroplanes seriously for business journeys. And 1928 may be set down as the real beginning of Commercial Aviation.

THE R.A.F.

Of the R.A.F. little need be said. The Service has done more flying and better flying than in any previous year and the casualty list is smaller than ever in proportion to the amount of flying done.

There are newcomers to aviation who think that THE AEROPLANE pays too much attention to the doings of the R.A.F. To such one would point out that British Aviation owes its existence to the R.A.F. If it were not for the R.A.F. we should not have the best designs for civil aircraft and the finest aircraft material in the World,—as we have to-day. And we should not be in that happy position in which a British Airworthiness Certificate, given by our Stress Department and Aeronautical Inspection Department, is the hall-mark of superlative excellence in design, construction and material on aircraft and engines alike.

The Royal Air Force is recognised officially as our First Line of Defence. And we owe our position as the greatest Air Power in the World to those now alive who built up the Royal Air Force, and to those who died during the War and since. As usual, we have learned our lesson wastefully, but we have learned through the deaths of many good men how to make the World's best aircraft. *Si monumentum requiris, circumspice.*—C. G. G.

THE CHICAGO AERO EXHIBITION.

On Dec. 1 an International Aeronautical Exhibition was opened in Chicago.

A total of eighty-two commercial aircraft and twenty-nine aero-engines were on view.

British products were represented by a Gipsy-Moth, shown by the recently-formed Moth Aircraft Corporation, which is to manufacture the Gipsy-Moth and the Gipsy engine in America, by an Avro Avian exhibited by Air Associates, Inc., which company hold the U.S. agency for this type, by the A.D.C. Cirrus engine which will be manufactured in the U.S.A. by the American Cirrus Engines, Inc., and by the Titan and Jupiter engines, the licence for the construction of which has been acquired by the E. W. Bliss Company.

There is interest in noting that of the twenty-nine aero-engines shown only one, the Curtiss Conqueror, was of the water-cooled type.

BONES OF CONTENTION.

Mr. John Turner, Vice-President of the Travel Air Manufacturing Co. of Wichita, Kansas, who has recently returned to the United States from a tour of Europe, is credited with having said that the Aviation Industry in America is well ahead of that of Europe. He qualifies his statement by saying that "because all air lines in Europe are subsidised by their Governments the interests are controlled by large corporations. This naturally reduces private ownership to a minimum with the result that only huge passenger planes are in general use. Such a condition does not tend to create a large market for planes while in this country our chief market lies in the individual, a market that contains large potentialities."

Such a statement, even if it emanates largely from an American newspaper reporter's imaginative brain rather than from that of Mr. John Turner, appears to be not only mixed but contradictory. The ever-green subject of the subsidy, a thorn in the side of all Americans, is once again dragged in.

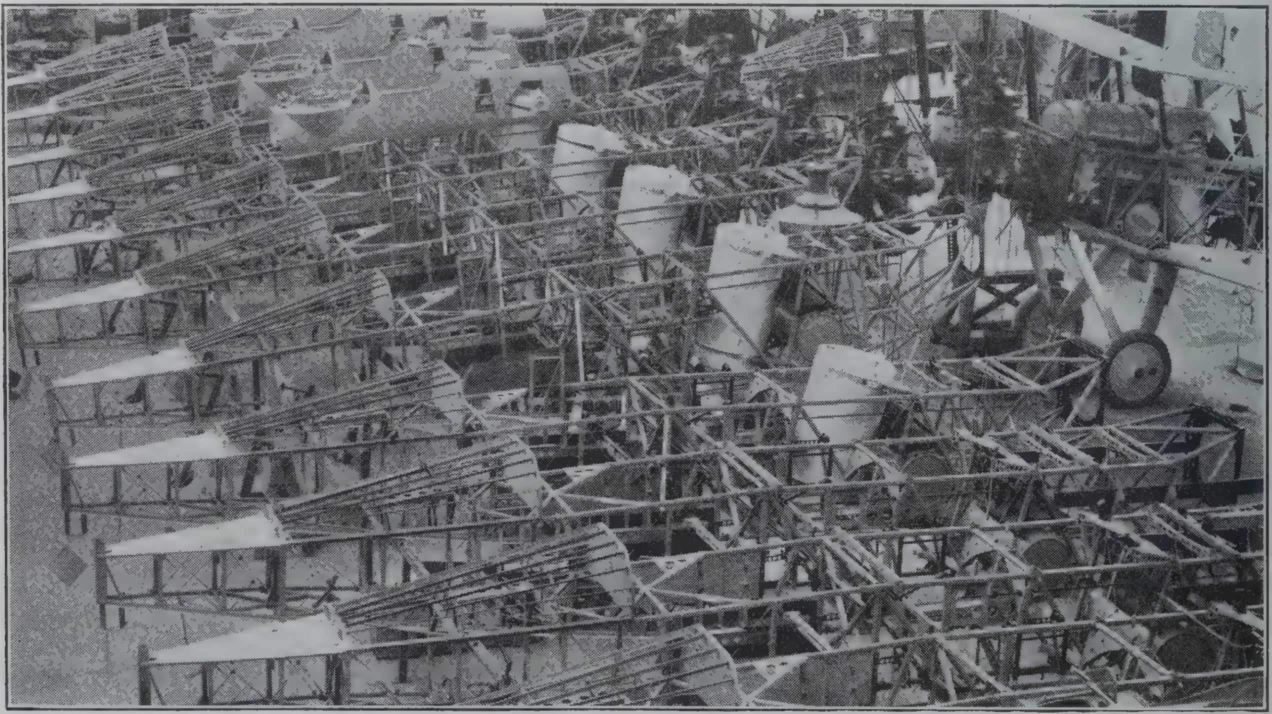
Without discussing the merits of air mail routes or passenger-carrying air lines as such, it is difficult to see the difference between an Air Ministry paying an air transport company a certain sum of money for the maintenance of a regular air line for the carriage of passengers, and a Post Office Department paying an air transport company for the carriage of mail matter, when viewed from the point of view of the aircraft operator and the aircraft constructor.

The air mail routes in the U.S.A. would never have reached their present state of efficiency without the financial help of the mail contract, and the assistance of the Post Office and latterly the Department of Commerce in the laying down of the routes and their accessories. And no aircraft constructor would have been able to produce suitable types at reasonable prices to take the place of the old Post Office D.H.4s had they not been definitely encouraged by the operating companies with hopes of big orders.

All this represents a species of indirect subsidy paid by the taxpayers. Now that the U.S. air mail routes are beginning to carry passengers they are only enabled to do so at a reasonable cost because their initial organisation has been, and will still continue to be, paid for by the continuance of the mail contracts.

Exactly why a Government subsidy naturally reduces private ownership one fails to conceive. The De Havilland Company has certainly not told the World that their weekly output of from 12 to 15 Moths has been interfered with by the fact that Imperial Airways operates about a dozen "giant air-liners." Also there are several small commercial aviation companies in this country which succeed in making their businesses pay without subsidies or even air mail contracts.

The point about large corporations is unconvincing. It is made more so when one contemplates the huge developments in the United States. All the big companies are becoming merged into huge corporations and a number of



AIRCRAFT PRODUCTION.—A shopful of Wapiti fuselages in various stages of assembly at the Westland Aircraft Works.

CIRRUS ENGINE

CIRRUS RELIABILITY.

CIVILIAN AIR ACCIDENTS.

The following analysis by the Aeronautical Correspondent of the "Morning Post" of Civilian Air accidents since January 1st, 1928, is conclusive proof of CIRRUS RELIABILITY.

ANALYSIS of CAUSE in 13 CASES.

"STALLING" THE CHIEF DANGER.

6 due to stalling.
1 due to rash flying.
1 due to racing in bad weather.
1 due to inexperience.
3 due to carelessness.
1 due to mechanical failure.

"This analysis shows that private and club flying has attained a high degree of safety: that not one serious Light Aeroplane accident can be attributed to engine failure."

"Praise for the absence of engine failure must be mainly bestowed upon the A.D.C. CIRRUS engine, with which the vast majority of Light Aeroplanes are equipped."

(Vide "Morning Post," 29-11-28.)

Specify a "CIRRUS" for your Light 'Plane.

Manufacturers:

CIRRUS AERO ENGINES LTD.,
REGENT HOUSE,
89, KINGSWAY, LONDON, W.C.2.
Works & Aerodrome: CROYDON, SURREY.

Telephone—
Holborn 4076

Cables—
Airdisco London.

smaller companies are being absorbed into the bigger groups or are being financed by the big banking corporations.

Mr. Turner's own company has succumbed to the latest fever and parted with 50 per cent. of its ownership to banking interests who propose to double the size of its factory.

The question of huge passenger 'planes applies equally to any country, the United States included, and their use is largely dictated by existing, or possible future, conditions. The Travel Air Company started with the production of small three-seat open-cockpit aircraft fitted with 90 h.p. Curtiss engines and by good business coupled with sound design and construction has made for itself an enviable reputation as one of the more important suppliers of small commercial aircraft. Nevertheless they have since produced a six-seat cabin monoplane the price of which is not within the reach of the individual. And if the company were approached by one of the recently-formed large corporations to produce a huge passenger 'plane one hardly imagines that the company would refuse because its mission in life is to supply the private individual.

The production of commercial aircraft is largely governed by local conditions. The United States differs from Europe in a great many respects and so long as these differences exist so long will the requirements of the commercial aircraft operator differ.

The fashion for the cheap American three-seat biplane, of which the original Travel Air was one of the most noteworthy examples, was promoted by the huge surplus of Curtiss OX-5 engines with which the market was flooded after the war. Now that the OX-5 glut has disappeared the cheap American three-seater is no longer cheap.

The next fashion was the four-seat cabin machine with the 200 h.p. engine. This was not produced solely for the individual but for economical commercial air line work. In spite of its booming as the machine for the World it was soon found that for certain classes of work its 200 horse-power was not enough and in many cases the horse-power was doubled and naturally the price was put up.

Then the boom started in big passenger machines. The Fokker Tri-motor, the Fokker F.10, the Boeing 80, the Ford-Stout AT-4 and AT-5, and the Keystone Patrician, are all multi-seat three-engined aircraft of a type considered by Mr. Turner to create conditions which do not tend to open up a large market for 'planes for the individual. Finally one has the announcement that the Fokker Company is building a fleet of 32-passenger aircraft for one of the recently formed American air transport corporations.

The latest fashion is the light two-seat aeroplane of the Moth or Avian class. Strange as it may seem America has little or nothing to offer in this market as yet. The few examples that have appeared, however, are not as cheap as the British light two-seater, although we are told that the market for the individual is the one on which the American industry is concentrating.

All must hope that Mr. Turner will not look with the same amount of scorn on these new gigantic U.S. Corporations, and the production of big American aircraft, as he presumably did when he regarded Europe's effort to maintain its modest international air lines.—L. B.

THE HAZARD OF LIGHTNING IN AVIATION.

The Daniel Guggenheim Fund for Promotion of Aeronautics Inc. has recently deputed Professor Alexander G. McAdie to conduct some investigations into "The hazard of lightning in aviation." The Professor has established a reputation as a meteorologist and now occupies the Rotch Chair in that subject at Harvard; in addition he is the Director of Blue Hill Observatory.

There is general knowledge that in the middle of the 18th century Benjamin Franklin conducted some experiments to investigate the nature of atmospheric high-tension electrical discharges. In the course of these investigations he flew kites during thunderstorms, and the phenomena he observed led him to express the belief that "the greatest known effects of common lightning may be exceeded." Further experiments conducted by Professor McAdie have but confirmed the soundness of Franklin's observation.

Several kites were flown from Blue Hill Observatory using about 1,600 metres of 1 mm. diameter steel pianoforte wire as the line. During a storm there was a sudden streak of light under a storm cloud and a kite and 600 metres of wire disappeared in smoke.

The weight of the wire was 3,600 grammes, and if the energy of fusion of steel be taken as 1,800 calories per gramme, then the electrical energy required to fuse that length and weight of wire may be taken to be 6.48×10^6 kilovoltamperes, approximately 7.5 kilowatt-hours.

If the resistance of the wire be 700 ohms. and the time the current took to pass through the wire be assumed to be 0.0001 second, then the strength of the current was 27,112,300 watt-seconds. The difficulty is to determine the time-factor. In the above example, if this be taken as only 0.0001 second the voltage of the discharge goes up to 13,000,000 instead of 1,400,000 for 0.001 second and the energy will be 25×10^6 K.V.A. So it will be seen that accurate measurement is essential in such investigations.

Professor McAdie has secured photographs of lightning discharges, the estimated voltage of which was 50,000,000 and the amperage 10,000. Such a discharge is more in the nature of an electrical explosion than anything else, and its energy would be enough to wreck any aeroplane yet built and kill its occupants.

All the Professor's experiments go to confirm the opinion generally held that no pilot should knowingly fly near to a highly-charged cloud. If he does so he incurs a double danger, firstly from the electrical discharge itself—and secondly from the violent air currents, both vertical and horizontal, which would make it next to impossible to control his machine. The disaster to the airship *Shenandoah* is an illustration of the second danger, for it was not apparently the lightning, but the terrific up and down thrusts of the air currents which brought disaster.

Until more is known about the subject pilots are recommended always to avoid cumulo-himbus clouds (thunderheads). The majority of these are found below 10,000 ft. but a good-sized thunder cloud may have its top, owing to the intense convection currents, three times as high as these figures.—S. G.

ALL-BRITISH.—The operating staff of Fairchild Aviation (Canada) Ltd. at Grand'Mere, P.Q.—Back row, left to right: S. Thibault, Rigger (Canada), Elwood Wilson, President (Canada), N. Jefferies, Pilot (England), H. M. Pasmore, Senior Pilot (England), J. Addinsell, Photographer (England), H. D. Wardel, Pilot (England), C. R. Troup, Pilot (England), W. Sunderland, Fitter (England). Front row, left to right: W. G. Lockett, Air Engineer (England), T. Murphy, Clerk (Canada), G. W. Dean, Pilot (England), Miss Edith Murray, Stenographer (Canada), Mrs. Ellwood Wilson (Canada), K. F. Saunders, Manager, Flying Division (Canada), L. J. Dalton, General Manager (Canada), Miss H. Tremblay (Canada), W. Kahre, Master Mechanic (Canada), W. Rancourt, Helper (Canada), R. Irvine, Accountant (Canada).

AERONAUTICAL ENGINEERING
SUPPLEMENT TO "THE AEROPLANE"

AIRCRAFT ENGINE TESTING.

BY G. H. WALKER, M.I.MECH.E.

The testing of aircraft engines calls for more than usual care in the selection of testing plant. The safety of passengers, pilot and aircraft; adherence to scheduled time tables; the load carrying capacity, efficiency of performance and economy depend very largely upon the correct functioning of the aircraft engine. It is therefore a natural consequence that manufacturers and users should take great pains to ensure that before use in aircraft their engines should attain a high standard of efficiency and reliability.

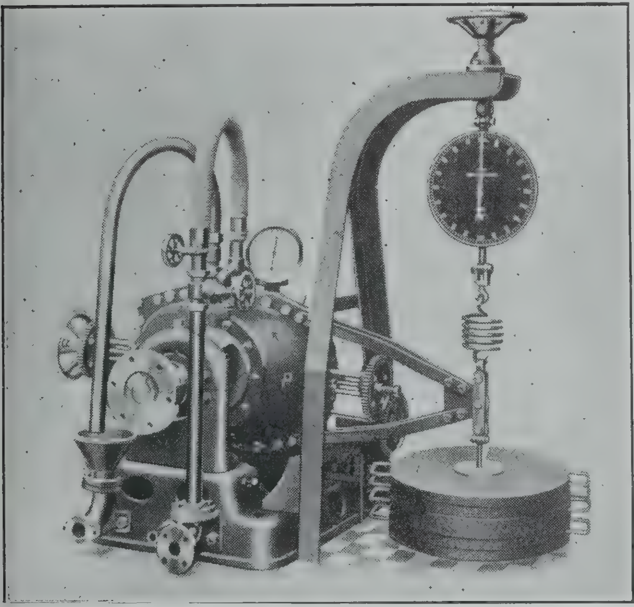


Fig. 1. A Froude Hydraulic Dynamometer, type D.P.X.

The Air Navigation regulations at Home and Abroad require that this standard of performance should be put to the proof by actual test. The requirements of the British Air Ministry in this respect are set out in printed form and stipulate that—

(a) the brake torque or load on the engine can be varied without stopping the engine;
(b) the h.p. or torque developed can be measured by means of the torque reaction of the brake or of the engine;
(c) adequate cooling facilities are provided for all types of engines;

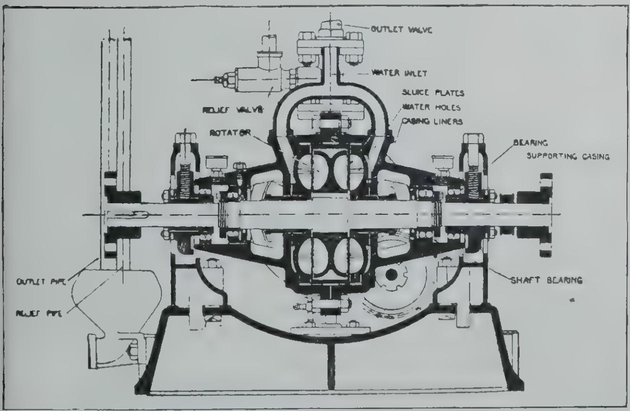


Fig. 2. A cross-section of the Froude Patent Hydraulic Dynamometer, type D.P.X.

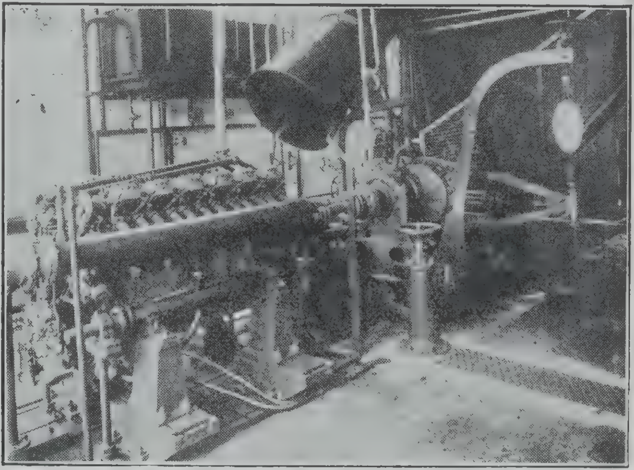


Fig. 3. A Rolls-Royce Condor Series III.A engine under test on a Froude Dynamometer.

(d) suitable means for accurate determination of the consumption of fuel and lubricating oil are available.

The measurement of power by torque reaction may justly be regarded as an "absolute" method giving readings which are beyond reasonable dispute, provided that the measuring device is correctly adjusted. The apparatus consists merely of an accurate weighing machine measuring the force arising from the development of power at a known distance from the axis of rotation.

Other systems, involving a hypothetical correction to compensate for inaccuracies inherent in the testing plant, are prohibited by the British Air Ministry and other authorities. The only corrections permissible are those applying to fluctuations in the density of the atmosphere, which governs the maximum power capable of being developed by the engine.

A device which fulfils the requirements of the British Air Ministry, and by reason of its dependability and convenience in commercial use has been adopted on a large scale in all parts of the World, is the "Froude" Hydraulic Dynamometer. This machine is so well known that a detailed explanation is hardly within the scope of this article but an illustration appears in Fig. 1 and a cross-section in Fig. 2.

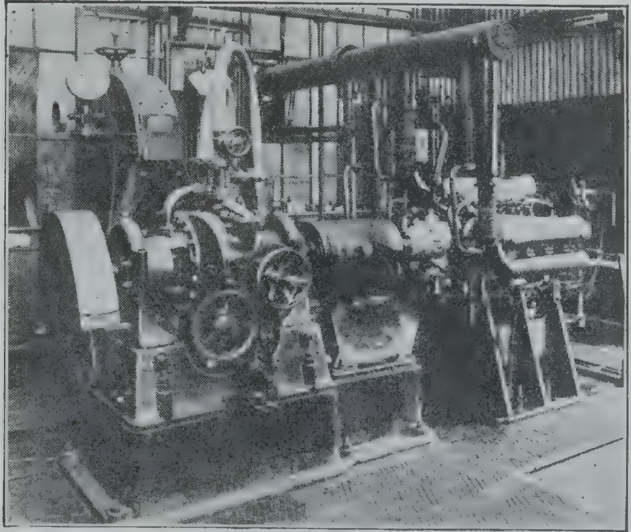


Fig. 4. A Froude Dynamometer at the Works of D. Napier and Son Ltd. A "Lion" engine on test.

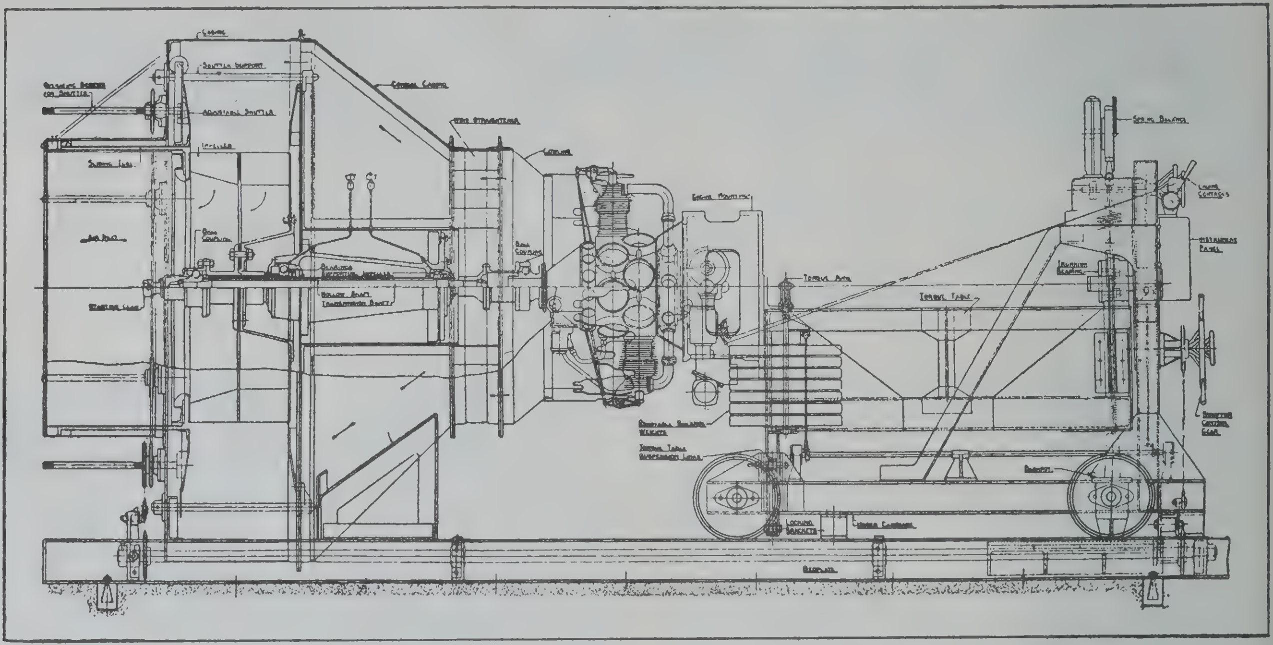


Fig. 5. Cross-section of the "Heenan-Fell" air brake dynamometer for aero-engines.

The engine undergoing test is direct-coupled to the shaft of the machine, upon which is keyed a rotor revolving inside a casing filled with water and having sluice-gates operated by external screwed spindles, by means of which the resistance to rotation can be regulated. Power is absorbed by hydraulic interaction between rotor and casing.

The latter is mounted upon ball bearing trunnions in such a way that all forces resisting rotation of the shaft, whether they arise hydraulically or by solid friction at glands or bearings, tend to turn the casing on its trunnions and transmit the torque to a weighing device connected to the casing by an arm, the effective length of which is known.

The power-absorbing capacity of this machine is somewhat surprising in relation to its small size. It is built in standard sizes to absorb the power of the smallest up to the largest aircraft engines, and is also built in a form other than that illustrated, for testing large internal combustion engines such as Marine Diesels of immense power.

As applied to an aircraft engine the load can be adjusted by a single hand-wheel, while running, to very fine limits of speed and torque, and running installations show every effect of engine tuning adjustment even to the extent of 1 b.h.p. in 500.

Fig. 3 shows one of these Dynamometers testing a Condor Engine, type IIIA. at the works of Rolls Royce Ltd., Derby, and Fig. 4 shows a similar Dynamometer testing a Lion engine at the works of D. Napier and Sons Limited, Acton.

A problem arises in testing air-cooled aircraft engines, connected with ventilation. It is, of course, essential that the engine should be allowed to work in a stream of air flowing over the heat-radiating surfaces at velocities equivalent to those experienced in flight. In the absence of adequate provision for ventilation, the engine would fail to operate satisfactorily and the b.h.p. developed would be appreciably under standard.

In cases where the engines to be tested are practically all of the same kind running at substantially similar speeds, although not necessarily developing similar powers, a satisfactory Dynamometer is the "Heenan-Fell" Air Brake, a description of which has been previously published.

This is shown in cross-section in Fig. 5, from which it will be seen that the engine drives a centrifugal fan impeller blowing air at high velocity over the engine, which thereby provides its own ventilating blast. Power is regulated by a shutter controlled from the exterior of the casing and sliding over the periphery of the impeller, so as to vary the volume of air discharged and therefore the power consumed. The power is measured by torque reaction on the crankcase of the engine.

In many cases, however, the range of engine sizes is so considerable that a more flexible plant becomes necessary. The introduction of gearing into the design of an engine which has previously been made for direct drive, changes entirely the speed and torque without necessarily altering the power. High-performance engines again require a more generous blast of cooling air than those produced for commercial purposes.

Thus, the conditions of the test are directly affected and provision must be made to meet them.

The Bristol Aeroplane Co. have purchased from Heenan and Froude Ltd., specialists in engine testing plant, a number of Wind-Tunnels, the design of which offers a satisfactory solution of these problems. An illustration of one of the Wind-Tunnels recently set to work at Bristol is shown in Fig. 6.

A Bristol Jupiter aircraft engine is mounted on a cradle supported at the front end on rollers and at the rear end, remote from the engine, on a pivot-bearing, so that under the influence of torque-reaction the cradle can rotate to a limited extent about the same axis as the propeller shaft.

Spring-loaded anchorages restrain the motion of the cradle and cushion the inequalities of torque which arise from the impulses of the engine. The complete cradle and engine can

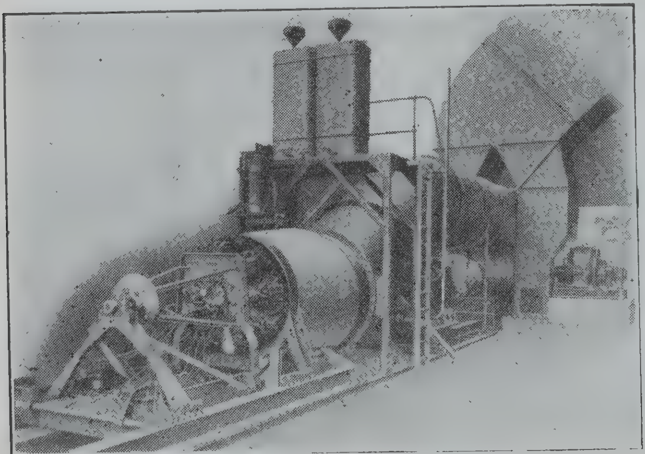


Fig. 6. A Froude "Wind Tunnel" testing plant supplied to the Bristol Aeroplane Co. Ltd.

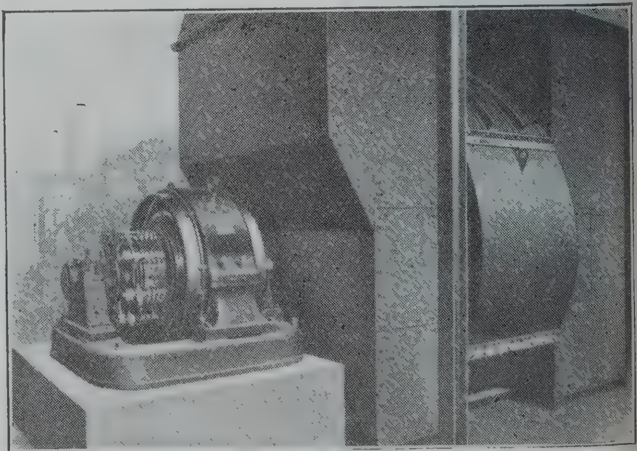


Fig. 7. The high pressure centrifugal fan for the "Wind Tunnel" plant shown in Fig. 6.

SPEED

Speed, especially speed at high altitude, is an outstanding feature of the

Bristol

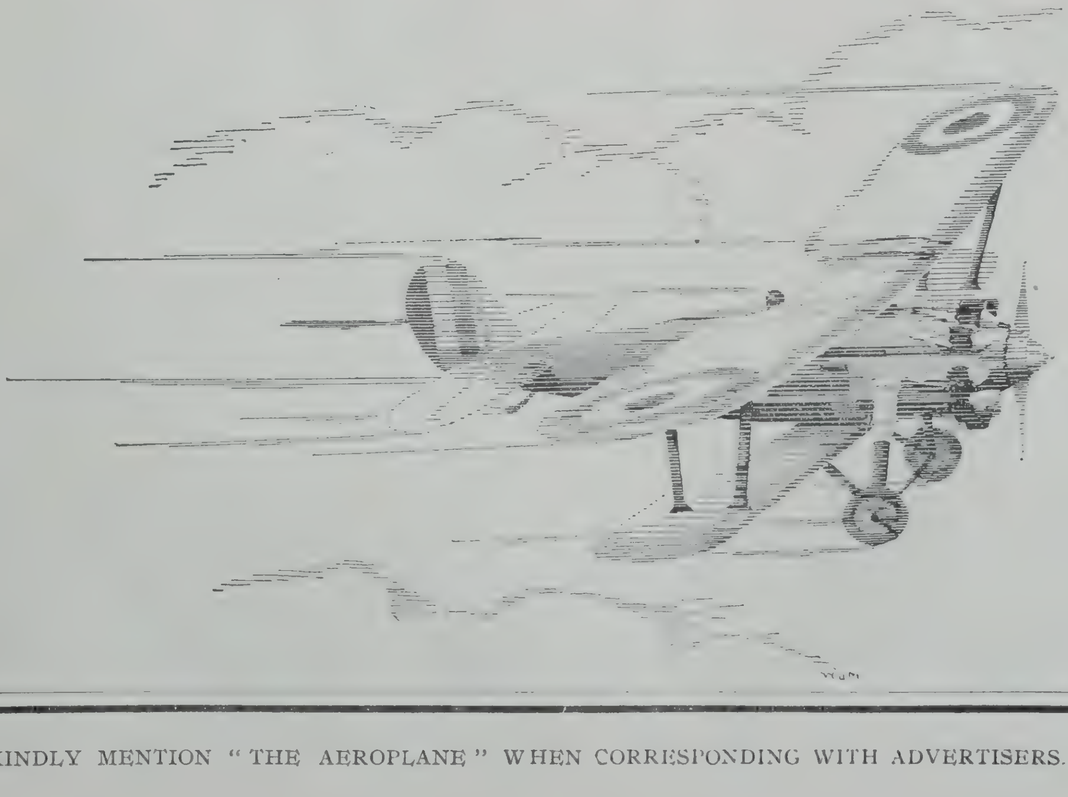
BULLDOG
SINGLE-SEATER
FIGHTER

An ability to climb at a rate hitherto unattainable, great powers of manœuvrability and a capacity for speed never previously shown by a standard military machine — these are the features which mark this remarkable aircraft and have caused it to be chosen for the equipment of the Royal Air Force.

The Bristol Aeroplane Co., Ltd.
Filton—Bristol.

Telephone:
3906 Bristol.

Telegrams:
"Aviation Bristol."



be racked towards or away from the open mouth of a large wind-tunnel, so that in setting up and adjustment, prior to or following a test, access to the engine is unobstructed.

After being mounted on the cradle, the engine is fitted with an adapter enabling the airscrew-shaft to be connected through a flexible cardan shaft to a transmission shaft supported in ball bearings which delivers the power to a "Froude" Hydraulic Dynamometer. Under running conditions the entire power of the engine is absorbed and accurately measured by this machine.

Running over the top of the Dynamometer and thence by easy bends towards the open orifice facing the engine, is a large wind-tunnel constructed in heavy steel plate conveying air from a high speed, high pressure "Heenan" Centrifugal Fan, designed especially to meet the exceptional requirements of test-shop practice, and capable of running continuously under the heavy duties created by centrifugal force and dynamic load. A close- up view of the fan and its driving motor appears in Fig. 7.

The entire construction is heavy and substantial and the freedom from vibration at all loads and speeds is extraordinary. The last-mentioned illustration shows an electric motor of the variable-speed pattern rated for 300 maximum b.h.p. and capable of giving air velocities over the engine of well over 130 m.p.h.

In an adjacent test shop of the Bristol Aeroplane Co., Heenan and Froude have erected another wind-tunnel driven by a variable-speed motor of 550 b.h.p. and giving windspeeds past the engine well in excess of 180 m.p.h.

On overload the official test conducted shortly after starting up this plant showed wind speeds of 197 m.p.h.

It does not of course follow that the high wind-speeds cited above are commonly used to pass out engines. Normal testing demands an expenditure of fan power in this particular wind tunnel of the order of 200 b.h.p., but for high-performance engines and for a variety of development work, the ability to command very high wind-speeds puts the Bristol Aeroplane Co. into a position to investigate features of engine design which they would otherwise be severely handicapped in doing.

With their wind tunnels Heenan and Froude supply very complete equipment and accessories including such items as engine-control levers, switches, gauges, thermometers, airspeed indicators, tachometers, speed counters, etc. For fuel supply and measurement are included petrol tanks, strainers, flowmeters, and in the oil circulating system are inserted oil coolers with electrical heating devices and strainers.

For running-in new engines and starting-up purposes, they supply a specially designed electric motor connected to the free end of the dynamometer shaft through a self-disengaging jaw clutch, and having various safeguarding devices which protect the bearing surfaces of the engines against undue load while they are being run in.

This type of wind-tunnel testing plant appeals to a very wide circle of aircraft engine users owing to the enormous range of powers and speeds and types of engines with which a single plant will deal. For instance, it is commonly possible to test engines varying in power between 80 and 1,500 b.h.p. whether they are air-cooled, water-cooled, direct-drive or gear-drive, and in some cases whether they run in the right-hand or left-hand direction of rotation. The convenience of this degree of flexibility to a Government Establishment or Air Line using a variety of engines is immediately apparent. Sufficient margin is inherent in the design to cater for considerable alteration to type of engine and for future development.

As an instance of this facility may be cited the case of the Argentine Naval Commission who have recently entrusted to Heenan and Froude an order for a wind-tunnel plant to be installed at the Argentine Naval Aviation Station of Bahia Blanca (Argentina) closely following the lines of those described above, capable of testing a great variety of British and foreign engines, geared and direct-drive patterns, air-cooled and water-cooled, running in both directions of rotation.

The plant is complete with centrifugal fan, variable-speed electric motor, inlet duct, wind-tunnel proper, engine cradle with mountings and adapters to suit various engines, platform supporting fuel tanks, fuel measuring, cooling and heating devices, "Froude" Dynamometer, starting motor and water cooling equipment.

The last mentioned item consists of a "Heenan" V-type cooler for water-cooled engines fitted with centrifugal circulating pump, driving motor and mixing tank by which the temperature of the water in the cylinder jackets may be closely adjusted. This cooler renders the test shop independent of external supplies of water, both for engines and dynamometer. With the aid of this plant the purchasers will be in a position to undertake all normal tests for maintenance, check the performance of repaired engines, tuning up, and if they so desire, conduct their own research work.

FOG-FLYING AND RADIO-BEACONS.

The comparison of various means of transport in a fog is worth considering.

If we take a man walking at 4 m.p.h. as the standard for comparison in times of good visibility, it is reasonable to take his speed as 1 m.p.h. in a dense fog.

The comparative speeds for good visibility are :—

Pedestrian : express railway train :: 4 : 50 (or .08);
Pedestrian : fast motor-car :: 4 : 40 (or .1);
Pedestrian : aeroplane. :: 4 : 100 (or .04).

Such a comparison is all in favour of the aeroplane, but let us see what happens in a fog, a general fog at night, which all motorists dread when the weather forecast talks about an anti-cyclone over the British Isles with widespread fog at night.

Pedestrian : express railway train :: 1 : 10 (or .1);
Pedestrian : fast motor-car :: 1 : 2 (or .5);
Pedestrian : aeroplane :: 1 : 0 (or infinity).

Or in plain English the aeroplane ceases to function in a fog which is worthy of being so called.

Now this is a very grave drawback, because fogs are not peculiar to our islands. The remark, "the right place for air services is in the colonies where they do not have fogs," is simple nonsense because except in Australia they do have fogs. The writer travelled through the finest scenery in the North Island of New Zealand in a fog which not only entirely prevented him from seeing the reputed scenery but was as cold, damp and miserable as any November fog in England—a change from sub-tropical mid-summer to midwinter in a few hours—and he has had similar experience in South Africa.

Rapid transport to be useful must be consistent, and Mr. Handley Page's statement, "The consignee wrote saying that if that was the quickest way parcels could come by air from the Continent he would have them sent by wheelbarrow in future,"* is an indication that uniformity of service is required as well as speed.

It is a regrettable fact that in winter the anti-cyclone which produces dry calm weather causes fog or bad visibility. In other words the better the flying weather the worse it is to fly in!

Various attempts have been made to overcome this drawback.

Directional wireless is of some assistance. A pilot at X calling Croydon can be triangulated at Croydon, Pulham and Lympne, and in about a minute's time can be given a position to within a mile or so. If he is hoping to find an emergency landing ground in the murky depths of fog below, this information will not greatly diminish the underwriter's risk.

If the writer were an underwriter for aircraft risks, whenever there was a fog he would be listening in on the 900 metre wave-length, and if a pilot asked for his position he would remember the "possible distortion of directional wireless which has been known to be as great as 30°"** and get such cold feet that it would freeze the entire neighbourhood. Do underwriters wear fur boots or do they believe the actuarial figures?

The Loth Leader Cable system has been put forward and tried in a small way. It is a system well tried-out in New York harbour and elsewhere for marine navigation. But it does not seem to please everyone.

For one thing the apparatus in the machine weighs about as much as 2 tins of "Fair Ethyl." It requires a cable to be laid between aerodrome and aerodrome. The signal strength varies if the aeroplane yaws (if the aeroplane is on the direct line between aerodrome and aerodrome but has yawed through 90° the reading will be zero). And the signal strength decreases with altitude. It also has the almost unsurmountable drawback that its adaptation to aircraft occurred after the Air Ministry had spent much money on directional wireless, and we all know how difficult it is for a leopard to change its spots.

The Bureau of Standards, U.S.A., has evolved a simple piece of apparatus which seems to have all the advantages of both the Leader Cable system and directional wireless. It is virtually a Leader Wireless system.

The apparatus to be carried on the aeroplane only weighs about 2 lbs. It indicates continuously that the aeroplane is either on its true course or, if not, on which side of the course the aeroplane is flying, irrespective of whether the aeroplane is yawed or heading straight for the aerodrome. If there is any distortion of the wave front it will merely indicate a slightly curved course and not give a totally inaccurate or indefinite position.

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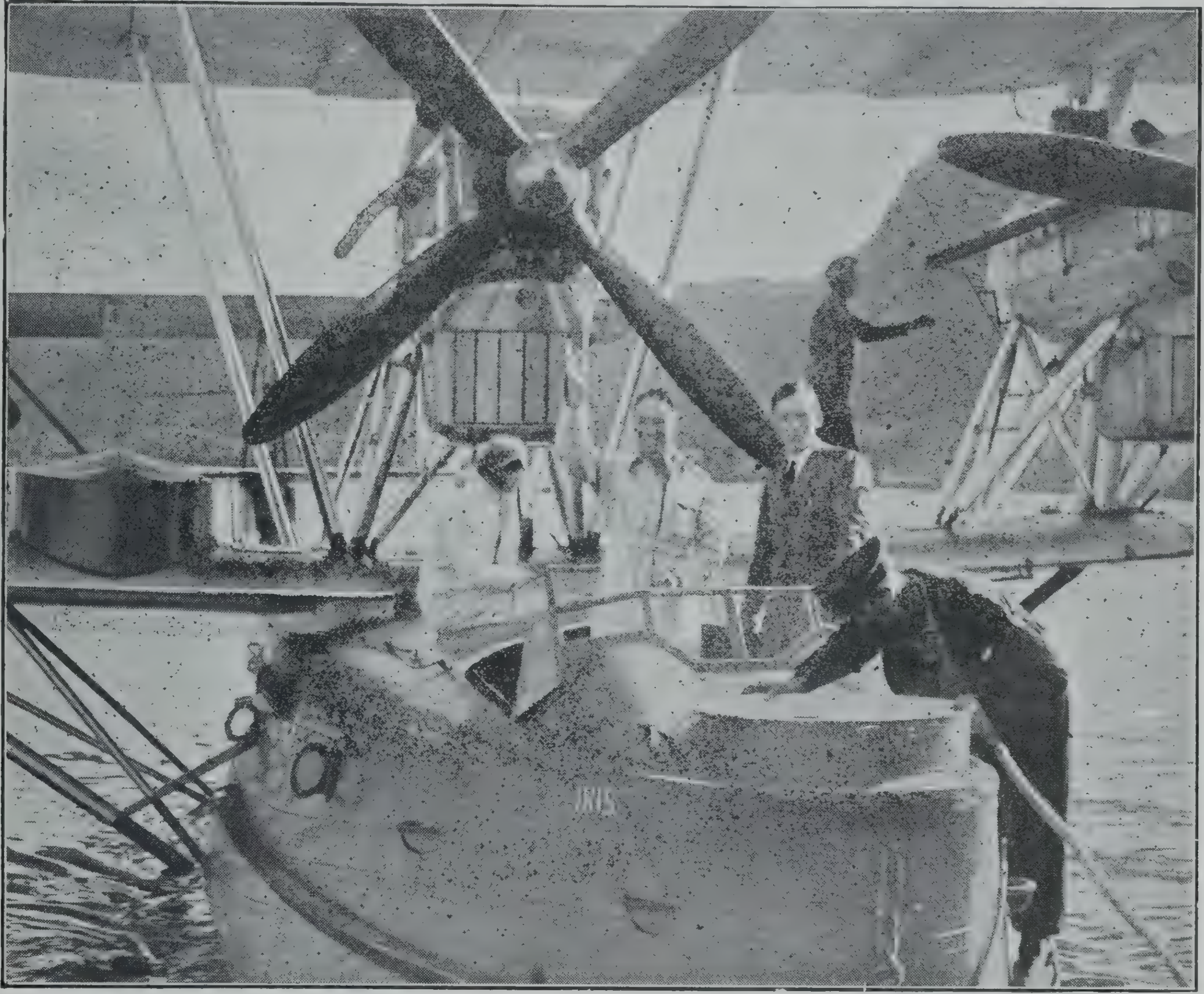
* "The Aeronautical Journal," Vol. 25, p. 216.

** "Wireless Direction Finding," p. 269. By R. Keen. (Iliffe and sons.)



THE UNDER-SECRETARY OF STATE FOR AIR AT NAPLES

"Sir Philip Sassoon told me that the comfort of transport by flying boat was the dominant impression he had gained from his 17,000 miles air tour to India and back. He found flying in the Blackburn 'Iris' pleasanter than any other form of transport," and remarked "that the flight had demonstrated the airworthiness and seaworthiness of this type of machine very clearly."

"The Morning Post," Nov. 15, 1928.

"Sir Philip Sassoon said he thought travel by flying boat was delightful. There was very little vibration and an extremely good speed could be kept up. . . . The whole trip had been a very useful and valuable test of the capabilities of the flying boat."

"The Times," November 15, 1928.

THE BLACKBURN AEROPLANE AND MOTOR COMPANY LIMITED
Head Offices and Works: OLYMPIA, LEEDS, YORKSHIRE.
London Office: AMBERLEY HOUSE, NORFOLK STREET STRAND, W.C.2.

Consequently instead of waiting for the pilot to ask where he is, and then giving him a position that is only approximate long after he has left it, the pilot is kept continuously wise as to where he is. The apparatus is described in Research Paper No. 28 of The Bureau of Standards, Washington.

A Radio beacon is set up at each aerodrome, which may be simply described as two frame aerials at right angles to each other, not dissimilar in appearance to the Bellini-Tosi aerials at Croydon aerodrome. These two frame aerials radiate continuous waves at the same radio frequency, but the wave in one frame aerial is modulated to a different musical note from the other.

In the example described in the above-mentioned research paper the continuous wave is radiated at 290 kilocycles (1,034 metres) from both frames, but the radiation from one frame is modulated to a certain frequency such as 60 cycles per second and the other to another low frequency such as 85 cycles per second.

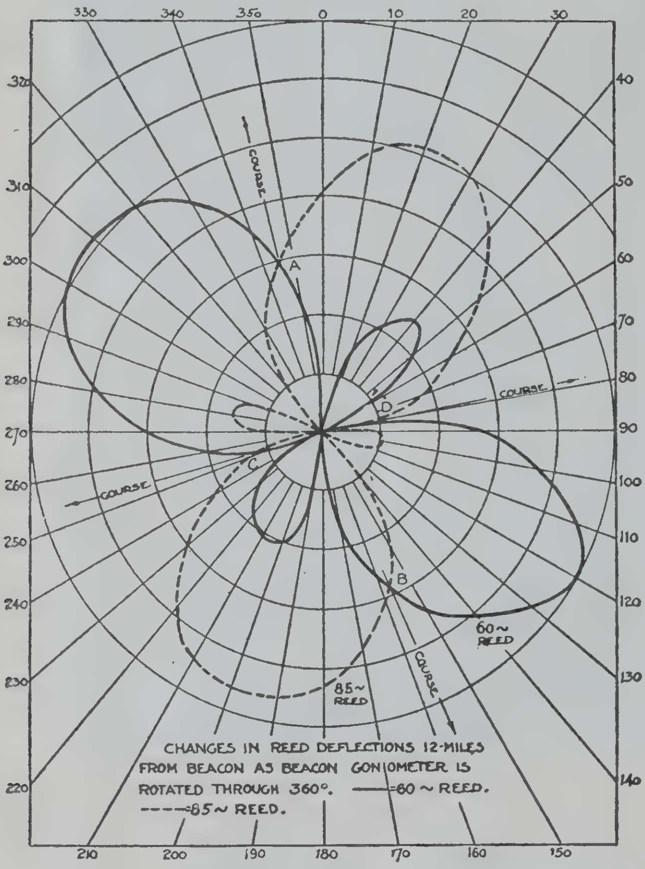


Fig. I.

The form of the radiation from these two aerials is shown in Fig. 1. It will be seen from the polar contour lines that the radiations overlap and are of equal strength on a line from A to the centre and from B to the centre (the radiation at 90° to these lines is too feeble to be of much use). An aeroplane fitted with an indicator proceeding from A to the centre will receive equal signals of each frequency, i.e., the 60 and the 85 cycles per second. If the aeroplane is off that line one signal will be stronger than the other.

It must not be thought that the contour line represents the limit of signal strength, because, in common with all other wireless signals, these radiations extend to infinity at continuously diminishing strength and the distance from which they can be picked up depends on the sensitivity of the receiving apparatus and the prevalence of atmospherics and other interference.

An indicator which has two reeds, one tuned to 60 cycles and the other to 85 cycles per second, is connected to the standard wireless receiving apparatus of the aeroplane in place of the head-phones.

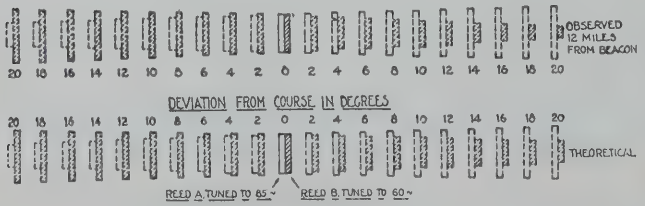


Fig. II.

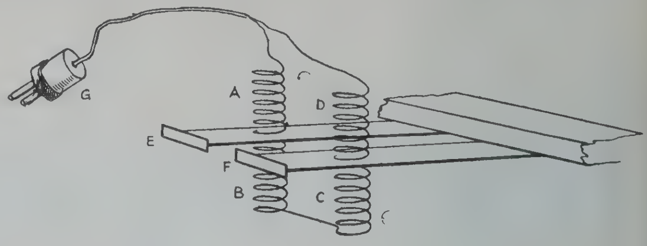


Fig. III.

The ends of the reeds are turned-up and painted white so that their movement appears as a white rectangle, growing larger or smaller as the movement is more or less. Fig. 2 shows the appearance of the reeds when the apparatus is in use, both reeds are white but for clearness of the diagram one is shaded.

Fig. 3 is a diagrammatic sketch of the indicator. A, B, C and D are four iron-cored coils in series, E and F are the two reeds and G is a plug to connect the indicator to the wireless receiving set.

The coils are opposed in pairs, two to each reed, in a manner somewhat similar to the windings of a pair of wireless head-phones, and just as in a pair of head-phones all the note frequencies received from the low-frequency amplifier of the wireless set pass through these coils. But, as the reeds are tuned, the reed tuned to 60 cycles will only be affected by the note frequency of 60 cycles and the other reed by the note frequency of 85 cycles.

Suppose the aeroplane were to cross an air route for which a radio-beacon was radiating at the same wave-length but modulated at other frequencies, for instance 40 cycles and 70 cycles, the reeds of this indicator would not respond. In this way each air route is as separate as a railway.

It is also possible to use several different radio-frequencies for the carrier wave, so that a hundred or more air routes could operate within a comparatively small radius.

Fig. 4 shows the instrument. A and B are polarising magnets similar to those used in loud-speakers to increase the sensitivity, and C is a small bimetallic strip (somewhat similar to the compensated balance-wheel of a watch) to compensate for variations of temperature. On the right-hand side of the illustration is a reed removed from the instrument showing the method of construction. The reed is about 3 in. long. The small lamp is for illuminating the turned-over ends of the reeds.

The indicator is fitted with 4 plugs to fit into sockets in the mounting, which allows it to be inverted for use when flying away from the radio-beacon, and also enables the indicator to be changed for one having reeds tuned to other frequencies for use on other routes. To change the indicator is, of course, the matter of a few seconds.

As described, the indicator is plugged into the wireless receiving set in place of the head-phones, but it would be comparatively easy to design a filter so that the pilot could still wear his headphones to receive telephony without hearing the indicating notes which actuate the reeds.

Speech would be quite intelligible if all frequencies below 200 cycles per second were filtered-out, because all consonants are high-frequency vibrations and the vowels are easily supplied by the imagination. Many of the wireless loud-speakers of a few years ago, that gave quite intelligible speech, cut off at 250 cycles. If the indicator burnt out or failed from any other cause the head-phones could be plugged into the indicator circuit and the pilot could keep

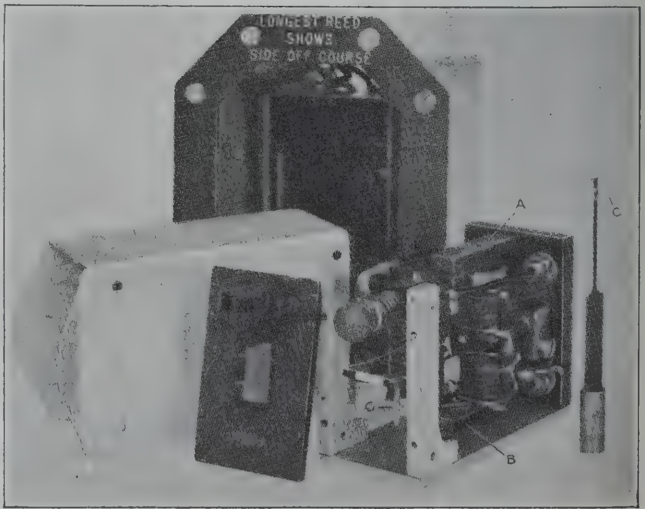


Fig. IV.

Hawker Horsley
Torpedo Carrier

ROLLS-ROYCE

AERO ENGINES

his course by sound. It would not be easy to keep a straight course but it would guide him to the aerodrome.

This apparatus should go far to relieve the underwriters' anxiety, and prevent the ratio of pedestrian to air passenger becoming infinity during an anti-cyclone in winter.

There is still the possibility of collision in the air and it seems to the writer that one reed should be slightly more sensitive than the other so that when the indicator shows "true course" the aeroplane is slightly to the right, and thus would avoid any machine flying in the opposite direction.

To sum up, the apparatus is cheap, light, small, and can be fitted to any aeroplane carrying wireless. The current required is less than that required for a loud-speaker and consequently it does not require any special wireless receiver. The only real expense is the radio-beacon at the aerodromes. Let us hope that there will be no "airworthiness" objection to prevent its compulsory fitting to all aircraft.—BM/ZRMX.

NEW AEROPLANES.

The Espenlaub "H.D.14."

Made by Espenlaub Flugzeugbau, Düsseldorf.

Type.—Light two-seater.

Wing.—Parasol cantilever monoplane. Wing supported on four vertical struts each triangular in side elevation with bases on fuselage. Built on two spruce and three-ply spars, leading edge three-ply covered. Unbalanced ailerons.

Fuselage.—Oval section, of three-ply on transverse formers.

Tail Unit.—Entirely movable balanced tail-plane and balanced rudder without fin.

Undercarriage.—Cross-axle "Vee" type, of steel tube, rubber cord sprung.

Power Plant.—30 h.p. three-cylinder or 45 h.p. six-cylinder Anzani engine on nose of fuselage.

Accommodation.—Tandem open cockpits, one below and one aft of wing.

Dimensions.—Span 11.5 m. (35 ft. in.), Length 6.0 m. (19 ft. 8 in.), Wing area 16 sq. m. (172 sq. ft.).

Weights and Loadings.—Weight empty 300 kg. (660 lbs.), Loaded 700 kg. (1,540 lbs.), Wing loading 43.7 kg./sq. m. (8.95 lbs./sq. ft.), Power loading 23.3 kg./h.p. (45.2 lbs./h.p.) (30 h.p.) or 15.5 kg./h.p. (34.1 lbs./h.p.) (45 h.p.).

Performance.—Maximum speed 150 km.h. (93 m.p.h.), Landing speed 45 km.h. (28 m.p.h.), Climb to 1,000 m. (3,280 ft.) 7 minutes, Range at 130 km.h. (81 m.p.h.) 700 km. (435 miles).

Price.—5,800 marks (£290) with three-cylinder and 6,800 marks (£340) with six-cylinder engine.

The Hopfner "H.S. 538."

Made by The Hopfner Flugzeugbau, Vienna.

Type.—School and sporting light aeroplane.

Wing.—Braced parasol monoplane with folding wings. Centre section carried on four sets of inverted Vee struts, two sets on each side, one for each spar. Rear spar hinged at centre section. Outer wing sections supported by Vee struts hinged at their apices on bottom fuselage longeron below rear spar. The centre section is built on steel tube spars, outer section is of normal spruce structure.

Fuselage.—Steel tube framing, rigidly braced, partly covered three-ply, partly fabric.

Tail Unit.—Normal monoplane type. Tail plane strut-braced on underside only and adjustable in flight. Horn-balanced rudder. Steel-tube framework, fabric covered except tail plane, which has three-ply skin.

Undercarriage.—Split-axle Vee type. Axles run from opposite side of fuselage to base of Vee, crossing below fuselage.

Power Plant.—60 h.p. Walter five-cylinder air-cooled radial on steel sheet engine mount attached to fuselage by four bolts. Oil tank behind engine, fuel tank in centre section of wing.

Accommodation.—Tandem open cockpits, one below and one behind centre section, with dual control.

Dimensions.—Span 11.26 m. (37 ft. 0 in.), Span folded 3.10 m. (10 ft. 2 in.), Length 7.0 m. (23 ft. 0 in.), Height 2.55 m. (8 ft. 5 in.), Wing area 19.8 sq. m. (213 sq. ft.).

Weights and Loadings.—Weight empty 385 kg. (847 lbs.), Weight normal load (crew of 2 and 7 hours' fuel) 615 kg. (1,353 lbs.), Weight with crew of 2 and 17 hours' fuel 770 kg. (1,694 lbs.), Wing loading, normal, 31 kg./sq. m. (6.4 lbs./sq. ft.), Maximum 38.8 kg./sq. m. (7.96 lbs./sq. ft.), Power loading, normal, 10.3 kg./h.p. (22.4 lbs./h.p.), Maximum 12.8 kg./h.p. (28.2 lbs./h.p.).

Performance.—Normal load, Maximum speed 148 km.h. (92 m.p.h.), Landing speed 50 km.h. (31 m.p.h.), Climb to 1,000 m. (3,280 ft.) 9 mins., Range with maximum load, 2,160 km. (1,340 miles).

The Kalinin KL.

Made by Ukrvozdukhput (Ukrainian Air Transport Co.), Moscow, to designs of Mr. K. A. Kalinin.

Type.—Single-engined passenger carrier or ambulance machine.

Wing.—High wing braced monoplane. Wing elliptical in plan form, attached directly to top of fuselage, braced by two steel tube struts per side from bottom of fuselage. Spars are built-up boxes of Koltchougalumin (a Russian light alloy of the duralumin type) and ribs are attice girders of trough section strip of same material. Leading edge sheet metal covered. Unbalanced ailerons on skewed axis.

Fuselage.—Mainly rectangular section with rounded-off nose running into lines of airscrew spinner. Steel tube framework, rigidly braced forward and wire braced aft. Aft of the cabin section top and bottom longerons are reinforced by two parallel tubes, which are normally braced to the longerons, forming independent upper and lower girders with a clear unbraced space between on each side, to facilitate the loading of stretcher cases. Up to rear of cabin fuselage is sheet metal covered. Aft fabric covering is used.

Tail Unit.—Normal monoplane type, with balanced rudder and adjustable tail plane. Tail plane and elevator framed in light alloy of similar construction to wings. Fin and rudder steel tube frames. All fabric covered.

Undercarriage.—Split-axle type. Axle rubber slung between two tubes forming a narrow inverted Vee. This Vee is braced both forward and aft by two other tubes. Wheels may be replaced by skis, and an interchangeable float undercarriage is available.

Power Plant.—One 290 h.p. "M.6" (Hispano-Suiza type) engine with retractable side radiators. Fuel tank of 550 litres (121 galls.) in centre of wing.

Accommodation.—Pilot's cockpit, practically totally enclosed, below leading edge. Cabin 3 m. x 1.1 m. x 1.5 m. (9 ft. 10 in. x 3 ft. 7 in. x 4 ft. 11 in.) below wing. This may be equipped to take two stretchers, seats for surgeon and sick-bay attendant, with hot and cold water supply, medical stores, etc., and can be heated either electrically or from an exhaust air heater. Side doors are provided and in addition doors aft the cabin between the doubled upper and lower longerons permit loading stretchers. Alternatively the cabin may be equipped with normal passenger seating.

Dimensions.—Span 16.72 m. (54 ft. 10 in.), Length 11.35 m. (37 ft. 3 in.), Height 3.8 m. (12 ft. 6 in.), Wing area 40 sq. m. (430 sq. ft.).

Weights and Loadings.—Weight empty 1,400 kg. (3,080 lbs.), Maximum disposable load 1,000 kg. (2,200 lbs.), Loaded weight 2,400 kg. (5,280 lbs.), Wing loading 60 kg./sq. m. (12.3 lbs./sq. ft.), Power loading 8.27 kg./h.p. (18.2 lbs./h.p.).

Performance.—At 2,360 kg. (5,192 lbs.) weight, maximum speed 185 km.h. (115 m.p.h.), Cruising speed 160 km.h. (99 m.p.h.), Landing speed 75 km.h. (47 m.p.h.), Climb to 1,000 m. (3,280 ft.) 8.5 mins., to 3,000 m. (9,840 ft.) 45 mins.

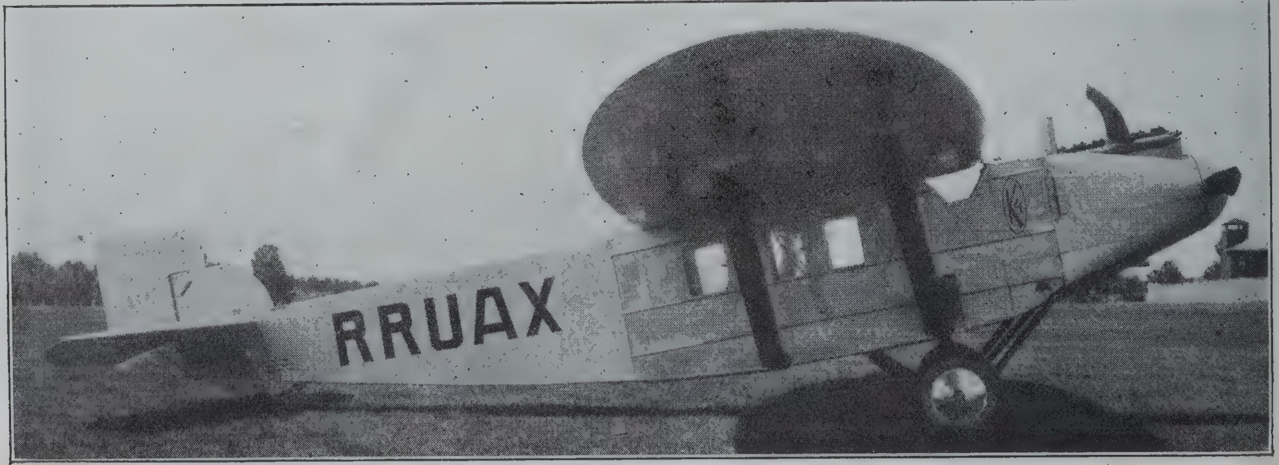
The Rohrbach "Rostra."

Type.—Long range flying-boat for passengers or freight.

Wings.—Monoplane, built directly onto top of central hull with pronounced dihedral. Parallel chord and section to beyond wing engine mounts, then pronounced taper to tips. Wing structure consists of a heavy box-girder about one-third of chord, fore and aft, width, whose outer surface is part of wing section, with detachable leading and trailing edges bolted on. Entirely of duralumin. Narrow chord, unbalanced ailerons.

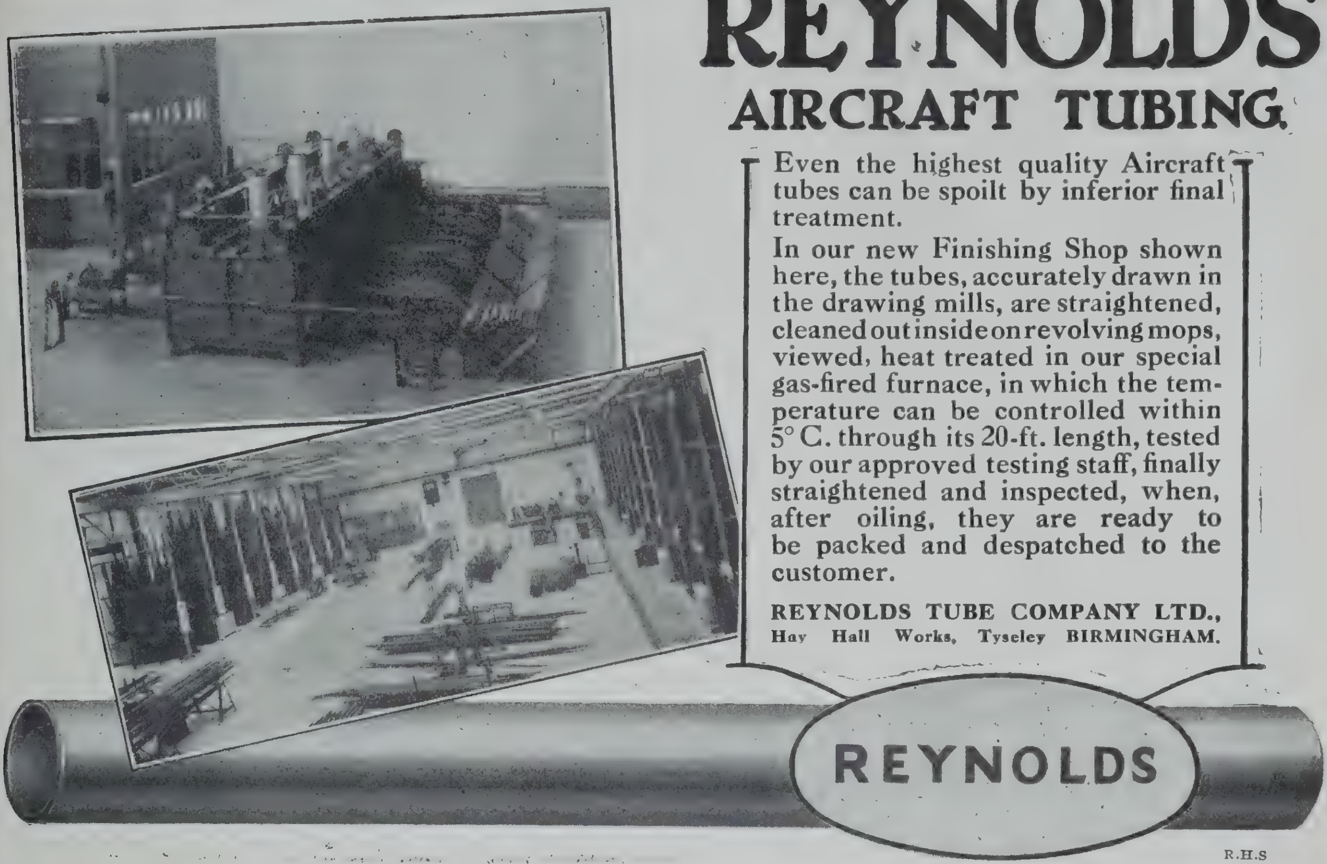
Hull.—Of very narrow beam, with slab sides, flat top and a steep hollow Vee bottom. Main step below C.G. with a second well aft. Built on a multiplicity of transverse bulkheads, one keel and four relatively light stringers, covered with uncorrugated sheet. All duralumin except bolts and fittings of steel.

Tail Unit.—Monoplane type. The tail plane is supported by the vertical



The Kalinin KL a Russian ambulance machine of all-metal construction.

REYNOLDS
AIRCRAFT TUBING



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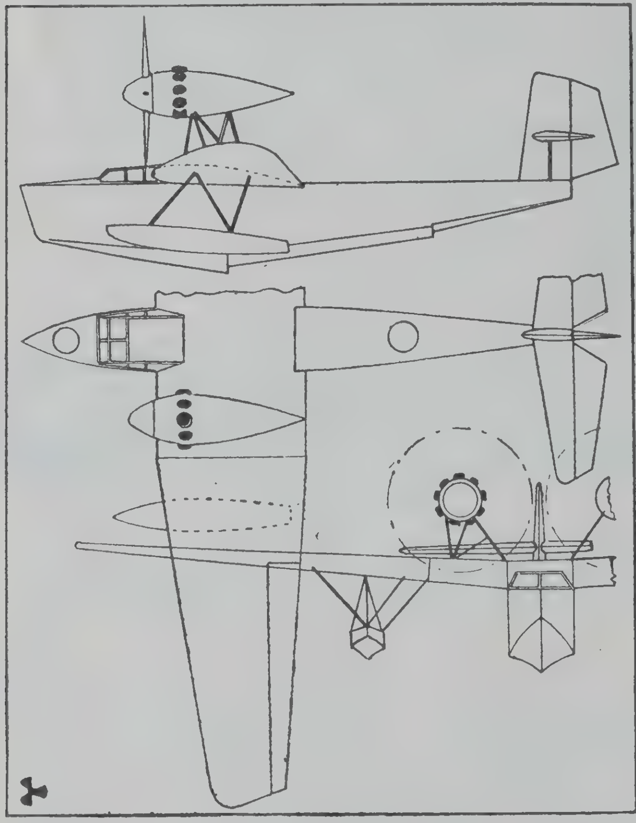
fin well above the hull and strut braced to hull by steel tubes. Fin and tail plane built on single box-girders similar to those of wings. All control surfaces unbalanced.

Alighting Gear.—Consists of main hull (q.v.) and two large side floats supported by steel struts from wing. These are of similar general construction to hull, but have no steps except those formed by their square sterns. Auxiliary floats are partially immersed at rest, and give some dynamic support when moving at moderate speeds.

Power Plant.—Two 450/610 h.p. geared Jupiter engines mounted in streamline nacelles above the wings. Each engine is supported on two Vees—one forward and one aft—and by a pair of struts running inwards to the hull. Four fuel tanks—total capacity 4,600 litres (1,012 galls.) are arranged in the wings outboard of engines and over side floats. There is one tank in leading edge and one aft of the main girder on each side. Oil tanks in engine nacelles. "Bristol" oil coolers on engine mounting struts.

Accommodation.—Mooring cockpit in extreme bow, with collision bulkhead aft, followed by enclosed cockpit for two pilots side-by-side. Aft is a large freight compartment, followed by a cabin for five passengers. A wireless cabin is fitted half-way from wings to tail.



Dimensions.—Span 26.9 m. (88 ft. 4 in.), Length 15.6 m. (52 ft. 1 in.), Height 6.3 m. (20 ft. 9 in.), Wing area 77 sq. m. (828 sq. ft.).

Weights and Loadings.—Weight empty 4,340 kg. (9,548 lbs.), Equipment 800 kg. (1,760 lbs.), Crew (3) 265 kg. (583 lbs.), Fuel 2,500 kg. (5,500 lbs.), Passengers and luggage 450 kg. (990 lbs.), Miscellaneous 45 kg. (99 lbs.) Loaded weight 8,400 kg. (18,480 lbs.), Wing loading 109 kg./sq. m. (22.3 lbs./sq. ft.), Power loading 9.34 kg./h.p. (20.55 lbs./h.p.).

(For freight carrying alone the weight of equipment is reduced, the fuel increased to 3,660 kg. (8,052 lbs.), and with a load of 400 kg. (880 lbs.) of height the loaded weight becomes 9,500 kg. (20,900 lbs.), Wing loading 123 kg./sq. m. (25.2 lbs./sq. ft.), Power loading 10.55 kg./sq. m. (23.1 lbs./sq. ft.)).

Performance.—At 8,000 kg. (17,600 lbs.) Maximum speed 213 km.h. (132 m.p.h.), Cruising speed 158 km.h. (98 m.p.h.), Climb to 1,000 m. (3,280 ft.) 4.6 mins., Absolute ceiling 4,150 m. (13,700 ft.).

At 9,500 kg. (20,900 lbs.) Maximum speed 208 km.h. (129 m.p.h.), Climb to 1,000 m. (3,280 ft.) 7.3 mins., Ceiling 3,000 m. (9,840 ft.).

TECHNICAL BOOKS.

Aeroplane Design.

"Die Grundlagen des Flugzeugbaues" (Elements of Aeroplane Design). By Ing. O. P. Fuchs, Vienna. Published by Adlerverlag, Berlin. 146 pp., 9½ in. x 5½ in., 77 figs.

The author of this book (who should not be confused with Prof. Dr. R. Fuchs, joint author of Aerodynamik by Fuchs and Hopf) has set himself the task of giving a compact guide to the practical aspects of aeroplane design.

Part I, Chapter I, on terminology, gives a schedule of aeroplane parts, and of aeroplane types with diagrams and a list of symbols. Chapter II gives the physical characteristics of the atmosphere, and Chapter III deals with some dynamical relations.

In this chapter kilogram-metre-second units are misused, density is called weight, weight divided by the acceleration of gravity is called "density"—the unit used being a "metric slug" of the dimensions $ml^4 t^2$ (!) even less relevant to Newton's laws of motion than the English "slug." Lifting surface divided by velocity is called "mass" of air. In the derived equations acceleration is equated to velocity and force and both to momentum and to mass, so that by an apt choice of units any desired performance may be produced on paper, as Prandtl recently remarked in a similar case.

Chapters IV and V give a good *précis* of modern aerodynamical methods, Chapter VI deals with structural design details and Chapter VII summarises performance calculations in fourteen formulæ and some sixty symbols.

Part II gives some forty excellent reproductions of photographs of various types of aeroplanes, engines and accessories.

Part III is a summary of the layout of design calculations. The arrangement of the matter is excellent and the methods employed are illustrated by worked-out numerical examples.—A.R.L.

Strain-Energy Stress Analysis.

"Strain Energy Methods of Stress Analysis." By A. J. Sutton Pippard, M.B.E., D.Sc., M.I.C.E., M.I.Mech.E. 146 pp. 5½ by 8¾ in. London: Longmans Green and Co. Ltd. Price 14s. net.

The methods of ordinary statics normally used for determining the distribution of stresses in simple framed structures break down in those cases where the frame contains any so-called redundant members. The structure of the average aircraft is usually full of redundancies, and despite the fact that satisfactory results are obtained by designing from stress analyses based on the assumption that the redundancy may be removed by regarding certain members as out of action more accurate methods of stressing are necessary in certain cases and desirable in many others.

The strain-energy method is so far the only satisfactory one for use in redundant structures generally. Unfortunately there has been up to the present no compact text-book suitable for the normal engineering student or practitioner covering the essential features of this method of stress analysis and the practical methods of its application.

In this book Prof. Pippard has supplied this want in a very adequate manner. Moreover the book, though its appeal is not by any means purely aeronautical, does deal very directly with stressing problems of particular interest to the aeronautical engineer.

PRACTICAL BOOKS.

The Jaguar Engine.

"The Jaguar Series IIIa Aero-engine." (Air Publication 1082, 3rd Edn., 1928.) 133 pp. 5⅜ by 8¼ in., 48 illustrations. London: H.M. Stationary Office. Price 2s. net.

This is one of those excellently compiled and exhaustive handbooks compiled for the Air Ministry and designed for the instruction of Service *personnel* which eventually become accessible to the general public.

This particular example deals with the Armstrong Siddeley Jaguar engine Series IIIa, which has now been superseded by later models of the same general type for both Civil and Service uses—a fact which necessarily detracts from the value of the work.

Nevertheless the general design of the Jaguar engine is now so fixed that the work will form a useful guide to all who have to deal with Jaguar engines of the Series IIIa or later types.

The work is arranged on the standard lines adopted in all these official handbooks. There is a detailed account of the engine, complete instructions for dismantling and re-erecting it, data as to timing, clearances, and allowable limits of wear, together with notes on starting and running. It is excellently and liberally illustrated with drawings and diagrams, and for all those who cannot secure a copy of a handbook dealing with the more recent engines of this make it is the best guide to the Jaguar engine available.

"Practical Flying." By Byron Q. Jones. 210 pp. 8¾ in. x 5½ in. 6 illustrations. Published by The Ronald Press Co., New York. Price 13s. 6d. net.

The author of this book is said to have been responsible for the flying training of many of the pilots of the American Army Air Service during the War, and he has himself been flying regularly since 1914. The book itself has been written in an attempt to answer the many questions which are currently asked by those many inhabitants of the United States who contemplate learning to fly, and further it is intended to act as a guide to those of them who do learn to fly which shall supplement the instruction they will receive at their flying school.

The book is of very uneven quality. It contains much sensible advice to the would-be pilot, and is particularly sound in its insistence on the fact that the great majority of flying accidents could be avoided if pilots would conform to a few elementary rules.

On the other hand, it contains a good deal of singularly inaccurate information concerning why aeroplanes fly, and why they will misbehave under certain circumstances. These inaccuracies are probably of little importance to the pupil who merely wants to know how to fly and is not worried about the precise reasons underlying the rules laid down. But it is a pity the author did not seek the assistance of some one who could put this section of the book into better shape.

The author's comments on curl flying training methods incidentally throw some light on the prevalence of serious flying accidents in the United States. There is no suggestion of incompetence on the part of the schools, but rather that a majority of the would-be pupils who think they can safely buy a machine and start off on long cross-country journeys as soon as they have just passed through their tests for a private pilot's licence, and insist on doing so.

"Bibliography of Aeronautics, 1925." The United States National Advisory Committee for Aeronautics, Washington, U.S.A. 189 pp. 10 in. x 6¾ in. Price 50 cents net.

This exceedingly useful little volume is an index to all important articles bearing on aeronautics which have appeared in the Technical Press of the whole world. Each item mentioned appears under the heading of its particular subject and when the author is known under his name, with cross references.

The whole is alphabetically arranged in such a way that all references to either a given subject or a given author may be discovered with the least possible trouble.

With its forerunners for 1909 to 1916, 1917 to 1919, 1920 to 21, 1922, 1923 and 1924 it is by far the best index to aeronautical technical literature that is yet available for general use.

THE ROYAL AIR FORCE.

The London Gazette.

December 18.

ROYAL AIR FORCE.

GENERAL DUTIES BRANCH.—Air Commodore Felton V. Holt, C.M.G., D.S.O., is appointed Director of Technical Development, Air Ministry (Dec. 7) (vice Air Commodore John A. Chamier, C.B., C.M.G., D.S.O., O.B.E.).

The following Plt. Offs. are promoted to the rank of Flg. Off.:—G. F. Simond (Oct. 9); I. McL. Cameron (Nov. 2); J. H. Lindell (Nov. 2).

The following are placed on the retired list at their own request:—Wing Cdr. D. S. K. Crosbie, O.B.E. (Dec. 8); Sq. Ldr. C. A. Ridley, D.S.O., M.C. (Dec. 19). Flg. Off. A. G. Hill is transferred to the Reserve, Class A (Dec. 13). The following Flg. Offs. resign their perm. comns. (Dec. 11):—N. Vintcent, D.F.C., J. S. Newall. Plt. Off. L. H. Smith relinquishes his S.S. comn. on account of ill-health (Dec. 14).

The S.S. comns. of the following Plt. Offs. on probation are terminated on cessation of duty:—P. C. Wilkin (Dec. 14); J. F. Ballin (Dec. 19).

Capt. E. J. O. Ellison, R.M., Flg. Off., R.A.F., relinquishes his temp. comn. in the R.A.F. on return to duty with the Royal Marines (Dec. 6).

MEDICAL BRANCH.—Flt. Lt. J. C. Osburne, M.B., is promoted to the rank of Sq. Ldr. (Dec. 19).

MEMORANDUM.—176360 Flt. Cadet C. Noble is granted an honorary comn. as a Sec. Lt., with effect from the date of his demobilisation.

RESERVE OF AIR FORCE OFFICERS.

GENERAL DUTIES BRANCH.—The following are granted comns. as Flg. Offs. in Class C, on resignation of their perm. comns. (Dec. 11):—N. Vintcent, D.F.C., J. S. Newall.

The following Plt. Offs. are promoted to the rank of Flg. Off. (Dec. 13):—R. Anderson, J. M. Greenwood, J. A. C. Northway.

Plt. Off. M. B. Barclay resigns his comn. (July 6).

MEDICAL BRANCH.—Flt. Lt. R. G. J. McCullagh relinquishes his comn. on completion of service (Oct. 4) (substituted for the notification in the *Gazette* of Nov. 27).

AUXILIARY AIR FORCE.

GENERAL DUTIES BRANCH.—NO. 600 CITY OF LONDON (BOMBING) SQUADRON.—The following to be Plt. Off:—J. A. Brown (Aug. 1).

NO. 602 CITY OF GLASGOW (BOMBING) SQUADRON.—The following Plt. Off. is promoted to the rank of Flg. Off.:—D. F. McIntyre (Oct. 20).

NO. 605 COUNTY OF WARWICK (BOMBING) SQUADRON.—The following Plt. Offs. are promoted to the rank of Flg. Off.:—J. F. C. Brinton (Sept. 15); G. V. Perry (Oct. 26).

Appointments.

Week ending December 24.

GENERAL DUTIES BRANCH.—Wing Commanders J. E. A. Baldwin, D.S.O., O.B.E., to C.F.S., Wittering, pending taking over command, 17/12. V. Gaskell-Blackburn, D.S.C., A.F.C., to No. 21 Group H.Q., West Drayton, for Engineer Staff duties, 10/12. V. O. Rees, O.B.E., to A. and A.E.E., Martlesham Heath, pending taking over command, 23/11.

Squadron Leaders C. E. H. Medhurst, O.B.E., M.C., to R.A.F. Depot, Uxbridge, 23/11. C. L. King, M.C., D.F.C., to No. 502 Sqdn., Aldergrove, 14/12. D. G. Donald, D.F.C., A.F.C., to No. 480 Flight, Calshot, 30/11. L. G. S. Payne, M.C., A.F.C., to No. 25 Sqdn., Hawkinge, 1/1. T. W. Elmhirst, A.F.C., to R.A.F. Training Base, Leuchars, 31/12.

Flight Lieutenants H. E. P. Wigglesworth, D.S.C., to No. 503 Sqdn., Waddington, 28/12. A. P. Ledger, M.B.E., to H.Q., A.D.G.B., Uxbridge, 26/11.

Flying Officers A. D. McDowall, to No. 100 Sqdn., Bicester, 7/1. G N. Coward, to E. and W. School, Flowerdown, 17/12.

Pilot Officers D. G. P. Fitzpatrick, to No. 23 Sqdn., Kenley, 26/11. K. F. T. Pickles, to No. 36 Sqdn., Donibristle, 28/12.

MEDICAL BRANCH.—Flight Lieutenants E. C. K. H. Foreman, to Princess Mary's R.A.F. Hospital, Halton, 28/11. P. D. Barling, M.B., to R.A.F. Base, Malta, 25/11. L. Freeman, to C. and M. Party, Basrah, 29/11. J. O. Priestley, D.M.R.E., to R.A.F. Depot, Uxbridge, 28/11.

Flying Officer A. L. St. A. McClosky, to R.A.F. Depot, Uxbridge, 19/11.

STORES BRANCH.—Wing Commander F. O. Williams, O.B.E., to R.A.F. Depot, Uxbridge, 23/11.

Squadron Leader F. Tedman, M.B.E., to The Packing Depot, Ascot, 23/11.

Flight Lieutenant L. H. Hillier, to No. 3 Stores Depot, Milton, 13/12.

Pilot Officers M. J. Scott, to C.F.S., Wittering, 11/12. P. Dennehy, to A. and G. School, Eastchurch, 12/12.

The Chief of the Air Staff.

The Air Ministry announces that Marshal of the Royal Air Force Sir Hugh Trenchard, Bt., G.C.B., D.S.O., having expressed the desire to be allowed to resign the appointment of Chief of the Air Staff when the interests of the Service permit, His Majesty the King was recently pleased, on the advice of the Secretary of State for Air, to accept his resignation with effect from January 1, 1930.

[This is not the time for a review of the services to the King and to the Nation of the Chief of the Air Staff. All that need be said is that we as a people are fortunate in having had the benefit of his leadership and guidance of the Royal Air Force for so many years more than is usual for the higher officers of the King's Services. And we may be sure that when he leaves his office he will have put the machinery of the Air Force into such order that it will run smoothly, and will be of such kind that when war comes again the R.A.F. can be expanded to whatever size may be needed.—C. G. G.]

Transfer of Short Service Officers to the Indian Army.

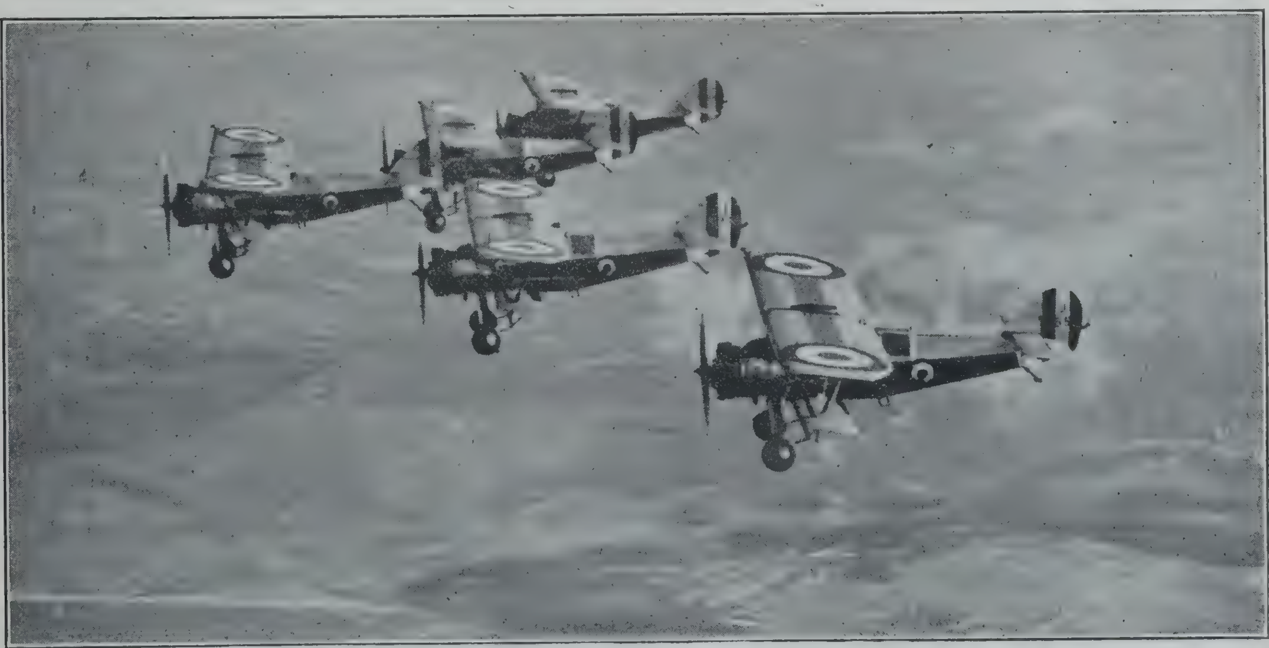
In agreement with the Secretary of State for India a limited number of Short-Service officers of the General Duties Branch may be appointed to permanent commissions in the Indian Army on or after the completion of their period of service on the active list.

To be eligible for consideration officers must (I) not have attained the age of 27 years on the date of transfer, (II) have served in the R.A.F. in India, 'Iraq or Aden for not less than two years, (III) not have been retired from the Royal Navy, British Army or Indian Army under any reduction scheme.

An officer will not be eligible on transfer to the Indian Army for gratuity in respect of his service on his short-service commission: a contribution to Indian funds will instead be made by the Air Ministry towards the ultimate cost of Indian retired pay, etc.

An officer will be allowed to count his service in the R.A.F. for seniority, promotion, increment of pay and all non-effective purposes in the Indian Army.

Officers who wish to be considered for appointment to the Indian Army should submit an application to the Air Ministry



"FORTY-ONE."—The Christmas Card of No. 41 (Fighter) Squadron, R.A.F. A formation of Siskins. No. 41 Squadron is stationed at Northolt.

through the usual channels, for transmission to the India Office, as soon as possible after completing four years of their active list period. The application should state, in order of preference, in which arm of the Service (cavalry or infantry) appointment is desired.

The Rebellion in Afghanistan.

The following statement regarding the position in Afghanistan and the safety of British subjects in Kabul was given by the Secretary of State for Foreign Affairs in the House of Commons on Dec. 19:—

Fighting appears to have broken out again at Jalalabad, but I have no precise information. As regards Kabul, I have received a report that tribesmen led by a notorious brigand, Bacha Saqao, attacked on the west of the city on 14th-15th December, and captured two forts. I have no exact information as to developments since that date, as the British Legation, which lies outside the city, has apparently been unable to use the wireless station, which lies near the Palace in the centre of the city. From the reports of an aeroplane which flew yesterday from Kohat to Kabul in order to establish communication with His Majesty's Legation, it appears that the aerodrome and the neighbourhood of the Palace are still in possession of loyal forces.

Plans were worked out some time ago by the Government of India for the withdrawal of women and children by aeroplane in case of need. The aeroplane mentioned above, which was despatched on the cessation of messages from His Majesty's Minister, received a message by signal to the effect that all in the Legation were well. The leaders of the tribesmen assured His Majesty's Minister on Dec. 14, that they had no hostile intention towards the Legation, but the Government of India will, of course, take all possible steps to ensure the safety of British nationals.

The report that one of the R.A.F. machines referred to by Sir Austin Chamberlain, had been damaged by rifle fire and had made a forced landing on Kabul aerodrome, has been confirmed by the Air Ministry. The machine was a D.H.9a belonging to No. 27 (Bombing) Squadron stationed at Kohat and was flown by Flg. Off. C. W. L. Trusk with L-AC. Donaldson as an observer.

After the forced landing of the first machine a second machine flew over the British Legation at Kabul at a considerable height and, after reading a message laid out on the ground, returned safely to its base.

The Halton Passing Out Inspection.

Marshal of the Royal Air Force Sir Hugh Trenchard, Chief of the Air Staff, inspected the Aircraft Apprentices of No. 1 School of Technical Training at Halton on Dec. 18.

The Commandant, Air Cmdre. I. M. Bonham-Carter, C.B., O.B.E., in the course of his Report, stated that the Entry now passing out was the thirteenth The system of "Unit" training by Wings instead of "Bulk" training had now been in force for two years with beneficial results.

The standard of discipline and drill achieved by previous entries had been maintained. Technical training had been satisfactory. The Monosoupape engine had been deleted from the syllabus. This entry had had more experience in engine running and detection of faults than previous entries owing to the completion of the new engine test house.

Considerable benefit had been derived during the aerodrome course for carpenter riggers by the use of more recent types of aircraft.

The general standard of physical training and games had been high, but more playing grounds were required. There were some excellent boxers in the entry.

The health and educational training of the entry had been satisfactory.

The following awards had been made by the Air Ministry:—

Grand Aggregate: 560391 AA. Reed, W. S.—Fitter A.E.

Educational Subjects: 560431 AA. Tearle, F. G.—Fitter Arm.

Fitter Aero Engine: First, 560353 AA. Nelson, R.; Second, 560391 AA. Reed, W. S.

Carpenter Rigger and Carpenter Motor Body Builder: First, 560291 AA. Horner, T.; Second, 560123 AA. Griffin, R. D.

Other Trades: First, 560296 AA. Hampshire, W. A., Fitter Arm; Second, 560460 AA. Woolacott, L. N., Copp. and M. Worker.

The Sir Charles Wakefield Scholarship has been awarded to 560391 Reed, W. S.

The results of the final examination are as follows:—38 Aircraft Apprentices have classified as L-AC., 181 as AC.1., 181 as AC.2., 5 had failed, and 8 were not examined or did not complete their examinations.

Cadetships: Cadetships have been offered to 560391 Reed, W. S.; 560122 Hodgkinson, W. H.; 560291 Horner, T. G.; and 560052 Coslett, T. N.

Fifteen Apprentices had been retained for the advanced course for corporals.

The Staff College, Camberley.

The following officers of the R.A.F. have been nominated for admission and will join the Staff College, Camberley, on Jan. 21, 1929:—Wing Cdr. F. Sowrey, D.S.O., M.C., A.F.C., and Sq. Ldr. E. B. Beauman.

Long Service Medals.

The Long Service and Good Conduct Medal has been awarded to the following airmen with effect from the dates given:—

No. 54 S-M.1. Jones, J. C., D.C.M., M.M. (21.7.28); No. 51 S-M.1. Hinds, T. H. C. (2.9.28); No. 967 S-M.1. Ellard, J. S. (18.8.28); No. 315043 S-M.2. Beattie, W. (14.9.28); No. 41 S-M.2. Breading, G. S. (22.8.28); No. 200673 S-M.2. Clayton, W. (26.9.28); No. 302133 S-M.2. Searle, S. (17.9.28); No. 314390 S.M-2. Strong, T. (13.6.28); No. 332513 F-S. Goldsmith, J. (2.7.28); No. 52 F-S. Hobby, C. A. (30.7.28); No. 315046 F-S. Lawrence, B. M. (3.9.27); No. 230 F-S. Rowe, O. R. (24.9.28); No. 314441 F-S. Williams, W. P., A.F.M. (30.8.28); No. 187135 Sjt. (A/F-S.) Rudham, H. (11.11.23); No. 107934 Sjt. Elliott, W. (2.2.28); No. 343252 Cpl. Heal, F. (14.7.28); No. 292112 AC.2. Booth, W. E. (22,12.27).

Special Assessments.

The following officers and airmen have been awarded special assessments as shown on completion of a course of *ab initio* flying training at the Units indicated:

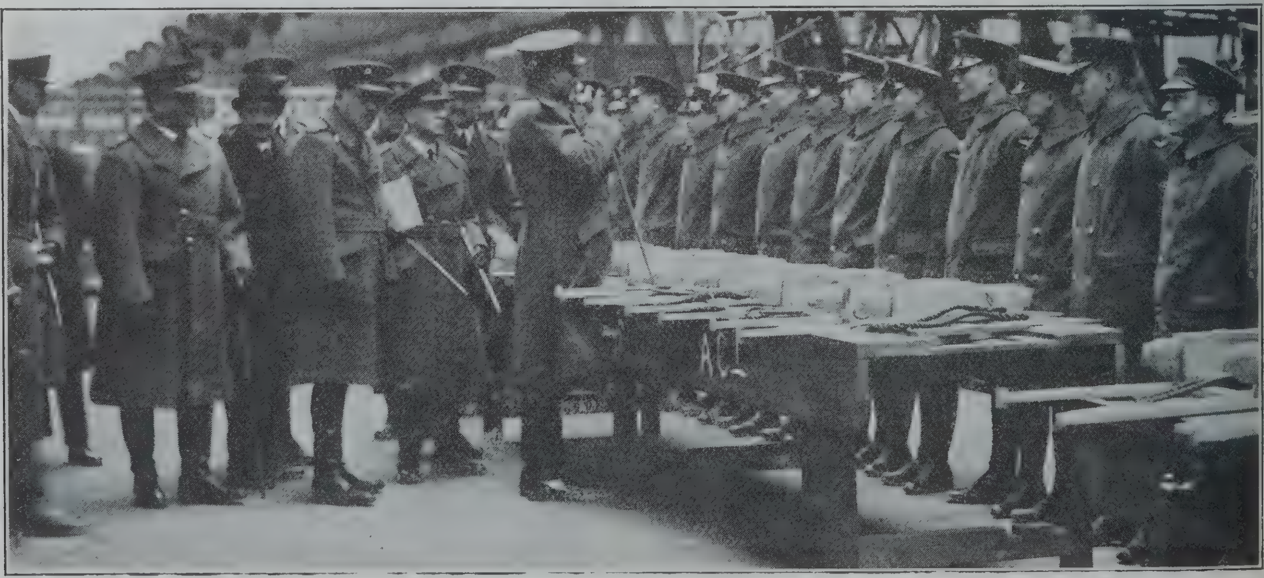
Distinguished Pass:—Lieut. H. L. Hayes, R.N. (Flg. Off., R.A.F.), R.A.F. Training Base, Leuchars. No. 363271 L-AC. J. M. Whitwell, No. 2 Flying Training School.

Notations have been made in the official records of this officer and airman.

Wing-Cdr. V. O. Rees.

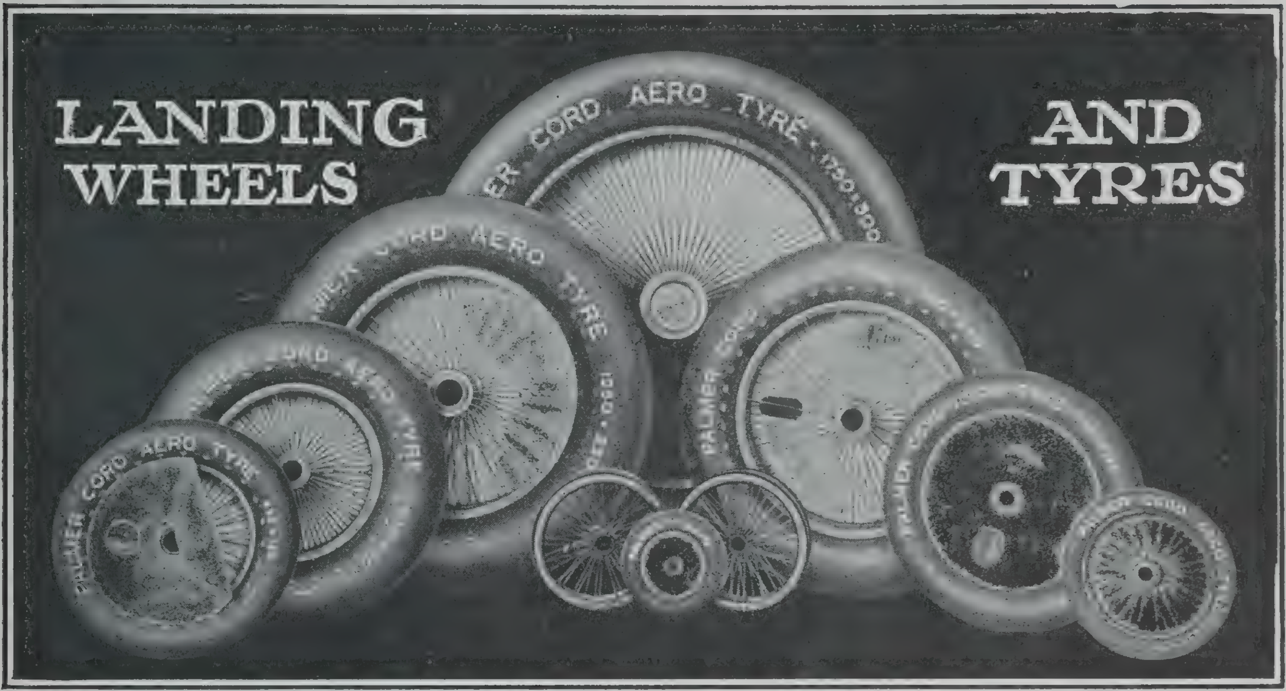
Wing Cdr. V. O. Rees, O.B.E., whose appointment to Martlesham Heath pending taking over command of the Aeroplane and Armament Experimental Establishment is dated Nov. 23, was born at West Battersea in 1886 and educated at Felix College and with an Army Coach. He joined the 23rd Battn. London Regiment (T.F.) as 2nd Lieutenant in January, 1912, and was promoted Lieutenant in October, 1913. In October, 1915, he learned to fly on a Caudron biplane at Hendon and his Royal Aero Club Certificate is No. 1839. He was promoted Captain in March, 1916, and in October of that year he was seconded to the Royal Flying Corps as Assistant Equipment Officer. He was graded as a Park Commander and appointed Chief Instructor to a School of Technical Training with the temporary rank of Major in April, 1917. In August, 1919, he resigned his commission in the Territorial Army on appointment to a permanent commission in the R.A.F. with the rank of Squadron Leader (Technical).

In March, 1920, he was posted to the Aircraft Park, 'Iraq. In February, 1921, he was made an Officer of the British Em-



HALTON.—The Chief of the Air Staff inspecting some of the work of the Aircraft Apprentices at Halton on the occasion of the Passing Out of the 13th entry on Dec. 18.

PALMER



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Tyre Size	Wheel No.	Hub		Track Line
		Length	Bore	
		m/m	m/m	m/m
375×55	168	111·12	25·4	Central
,,	195	130·	38·09	Central
300×60	16	111·12	25·4	Central
450×60	30	89·	31·75	Central
,,	172	130·	38·09	Central
575×60	21	160·	28·	Central
,,	180	150·	38·09	104/46
,,	186	120·	34·92	Central
,,	190	150·	38·09	Central
600×75	21	160·	28·	Central
,,	180	150·	38·09	104/46
,,	186	120·	34·92	Central
,,	190	150·	38·09	Central
700×75	78	178·	44·45	132/46
,,	79	178·	44·45	Central
,,	100	178·	38·09	132/46
,,	101	178·	31·75	132/46
,,	196	178·	55·	Central
600×100	188	120·	34·92	Central
,,	304	150·	38·09	104/46
,,	333	120·	34·92	Central
700×100	77	178·	44·45	132/46
,,	92	185·	55·	135/50
,,	95	185·	55·	Central
,,	99	178·	38·89	132/46
,,	112	150·	38·09	Central
700×100	176	178·	44·45	Central
,,	179	178·	55·	132/46
650×125	119	178·	55·	132/46
,,	147	178·	55·	Central
,,	188	120·	34·92	Central
,,	336	178·	44·45	132/46
750×125	77	178·	44·45	132/46
,,	92	185·	55·	135/50
,,	95	185·	55·	Central
,,	99	178·	38·89	132/46
,,	112	150·	38·09	Central
,,	176	178·	44·45	Central
,,	179	178·	55·	132/46
800×150	161*	185·	55·	135/50
,,	162*	185·	55·	Central
,,	163*	185·	66·67	135/50
,,	169†	185·	55·	135/50
,,	177	185·	55·	135/50
,,	183	185·	55·	Central
,,	211*	185·	60·32	135/50
1000×150	167	185·	55·	125/60
,,	174	250·	80·	Central
,,	182	185·	55·	Central
,,	187	220·	66·67	Central
,,	201	185·	60·32	125/60
,,	210	185·	60·32	Central
1000×180	148	220·	80·	Central
,,	149	185·	55·	Central
,,	155	220·	66·67	Central
,,	166	185·	55·	125/60
900×200	107	185·	55·	Central
,,	108	185·	55·	125/60
,,	128	220·	66·67	Central
,,	137	250·	80·	Central
,,	157	185·	80·	Central
,,	202	185·	60·32	Central
1100×220	134	220·	66·67	Central
,,	136	250·	80·	Central
975×225	192	185·	60·32	Central
,,	194	185·	55·	125/60
1250×250	314	250·	80·	Central
,,	154	304·8	101·6	Central
1500×300	305	304·8	152·4	Central
,,	306	304·8	101·6	Central
1525×325	197	304·8	101·6	Central
1750×300	139	400·	152·4	Central
,,	191	350·	150·3	Central
1750×350	193	400·	125·	Central

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pire in recognition of distinguished services in 'Iraq. He was also mentioned in Dispatches from 'Iraq in October, 1921 and October, 1922. He was promoted Wing Commander in June, 1922, and in August, 1922, he was appointed to the Inland Area Aircraft Depot at Henlow. In September, 1925, he was appointed to command the Aircraft Depot, 'Iraq.

The R.A.F. in Parliament.

THE DIRECTOR OF MEDICAL SERVICES.

In the House of Commons on Dec. 18, in reply to a question by Sir H. Cayzer, the Secretary of State for Air said that the tenure of the appointment of the Director of Medical Services dated from November, 1921. An extension had recently been granted until November, 1930. The question of any further extension would be considered on its merits when necessary in the light of the circumstances then existing.

[The Director of R.A.F. Medical Services is Air Vice-Marshal David Munro, C.B., C.I.E., M.B., M.A., F.R.C.S.(E.), K.H.S.]

The R.A.F. Memorial Fund.

The last Meeting of the Executive Committee of the above Fund for 1928 was held at the offices, No. 7, Iddesleigh House, Caxton Street, London, S.W.1, on Dec. 12.

In the absence of Lord Hugh Cecil (who was prevented by another engagement from attending) the Chair was occupied by the Hon. Treasurer, Sir Charles McLeod, Bart. There was only a small attendance.

The Chairman referred with great pleasure to two very large donations which had been made to the Fund by the Air Council in respect in the first place to some portion of the R.A.F. share of the profits of the Royal Tournament at Olympia in June, 1928, and in the second place to a donation out of the profits arising from the R.A.F. Display held at Hendon in July last, which was the most successful Display on record. A resolution of thanks was approved, which the Chairman, Lord Hugh Cecil, was requested to convey to the Air Ministry.

The Committee heard with much regret an offer from Lord Hugh Cecil, who has been Chairman of the Fund since its inception in 1919, to resign the Chair, but to retain membership of the Committee, this being due to a great pressure of other work. This matter, however, was deferred for further consideration until the next meeting of the Committee, Lord Hugh Cecil in the meantime retaining the Chair.

It was reported to the Meeting, that as has been customary for the past five years, a wreath provided by the Fund was laid at the foot of the R.A.F. War Memorial on the Victoria Embankment on Armistice Sunday by Marshal of the Royal Air Force Sir Hugh Trenchard, Bart., G.C.B., Chief of the Air Staff, on behalf of the Royal Air Force and of the Executive Committee of this Fund. Mention was also made at the Meeting that a similar wreath had been provided by the Fund and had been laid at the " Stone of Remembrance " opposite St. Giles' Cathedral, Edinburgh, on Armistice Sunday, this being a joint ceremony with the Royal Navy and the Army.

The Committee gave consideration to a question as to the advisability of changing the date of the ceremony at the War Memorial on the Victoria Embankment, which has always hitherto been held within half an hour of the National ceremony at the Cenotaph, a suggestion being made by Marshal of the Royal Air Force Sir Hugh Trenchard that the Committee might consider having this ceremony on some day other than Armistice Day ceremony which is held in respect to all the Services, and the Nation, on Armistice Day. The Committee after considering this question came to the opinion that it was advisable to change the date in view of Sir Hugh Trenchard's recommendation and the circumstances generally, and unanimously agreed that the ceremony at the R.A.F. War Memorial, London, should take place on the Sunday previous to Armistice Day in each year, and it is hoped this suggestion will be agreeable to everyone concerned.

R.A.F. Squash Rackets Championship.

The R.A.F. Squash Rackets Championship was played at Queen's Club on Dec. 17 and 18. The results were as follows :—

First Round.—Sq. Ldr. J. D. Colman beat Flt. Lt. E. D. H. Davies (9—6, 9—4, 9—7); Flg. Off. F. G. Downing beat Wing Cdr. W. Tyrrell (9—2, 10—9, 9—2); Flg. Off. F. T. Stacey beat Group Capt. W. R. Warrington-Morris (6—9, 9—3, 9—3, 9—4); Wing Cdr. A. G. Belfield beat Sq. Ldr. A. Lees (6—9, 9—2, 9—4, 9—5); Wing Cdr. F. L. Robinson beat Group Capt. W. F. McNeece Foster (9—1, 9—4, 9—1); Sq. Ldr. A. Coningham beat Flt. Lt. A. C. Stevens (9—2, 9—3, 9—3); Sub-Lieut. N. S. Luard, R.N. (Flg. Off., R.A.F.) beat Flg. Off. Hallward (4—9, 10—9, 9—2, 9—4); Air Cmdre. F. V. Holt beat Sq. Ldr. Fawcus (9—3, 10—8, 9—2).

Second Round.—Colman beat Downing (8—10, 9—2, 9—2, 9—7); Belfield beat Stacey (6—9, 9—3, 9—2, 9—4); Robinson beat Coningham (3—9, 9—1, 9—4, 9—1); Holt beat Luard (10—9, 9—5, 4—9, 5—9, 10—9).

Semi-final Round.—Wing Cdr. F. L. Robinson beat Air Cmdre. F. V. Holt (9—2, 9—7, 9—7); Wing Cdr. A. G. Belfield beat Sq. Ldr. J. P. Colman (9—10, 9—0, 9—4, 9—5).

Final.—Robinson beat Belfield (9—1, 6—9, 9—7, 9—6).

Wing Cdr. Robinson is thus the first official holder of the title of R.A.F. Squash Racquets Champion.

A VISIT TO THE FRONTIER.—Sir Philip Sassoon's visit to Kohat, N.W.F.P., on Oct. 21, 1928. Standing (left to right), Flg. Off. H. Parker, Flt. Lt. C. B. R. Pelly, Flt. Lt. G. Hanly, Wing Cdr. A. A. Walser, M.C., D.F.C., Flt. Lt. C. W. Busk, M.C., Flg. Off. J. H. Barringer, Plt. Off. F. W. Murison, Flg. Off. V. W. Soltau, Flg. Off. A. H. W. J. Cocks, Flg. Off. H. G. Wisher. Sitting, Lt.-Col. S. G. S. Haughton, M.O., I.M.S., Capt. W. F. Campbell, Air Cdr. A. M. Longmore, C.B., D.S.O., Sir Philip Sassoon, G.B.E., C.M.G., M.P., Sq. Ldr. R. H. G. Neville, M.C., Maj.-Gen. E. A. Fagan, C.B., C.S.I., C.M.G., D.S.O., Air Vice-Marshal Sir W. G. Salmond, K.C.B., K.C.M.G., D.S.O., Brig.-Gen. C. Kirkpatrick, C.B., C.B.E., A.D.C., Grp. Capt. R. P. Mills, M.C., A.F.C., Front row, Mr. G. E. Lewton-Brain, Indian Police, Plt. Off. G. K. Horner.

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CANADIAN DOINGS.

Winnipeg, Manitoba, Canada, Nov. 10.—The path to the stars is no less arduous in Western Canada than elsewhere, in proof whereof we have divers unpleasant incidents to record in recent months. Only one man has been hurt in the bodily sense, but sensitive souls have been seared in the flames of gasoline and criticism. Nevertheless the work has gone steadily on in a very significant way. It is noteworthy that we have staged all but one of our crashes, with commendable candour, in the limelight of the public eye, and have done most of our real flying by stealth,—the forestry patrols of the R.C.A.F. and the commercial services to the mines, being mostly under cover of the Northland.

Forestry patrols are over for the season and the Royal Canadian Air Force stations employed in this work are busy on overhauls. One accident in this field would certainly have cost Flg. Off. A. F. Macdonald his life but for the extreme gallantry of Dr. G. F. Amyot, surgeon in charge of the Ile la Crosse hospital in Northern Saskatchewan. Dr. Amyot made a 7-mile journey across two dangerous lakes in an outboard-motor canoe in almost impossible weather. Arriving after 28 hours of gruelling struggle he spent four practically sleepless days and nights over his patient, who will now recover.

Capt. "Jock" Shields, R.C.A.F., who dusts crops with sulphur in the early summer as part of an experiment in controlling the disastrous stem-rust of wheat, dropped into the Winnipeg Flying Club's aerodrome recently. He is at present photographing uninviting and primitively-fed areas up north. He reports that a meal in Winnipeg is very reviving and that it is adjectivally cold at 12,000 ft.

The Western Canada Airways, while busy overhauling their north-country machines in the enforced pause between float and ski operations, have headed another chapter in the air history of the West with their land services. A bi-weekly passenger and express service is now in running order from Winnipeg to Regina and Calgary with a feeder line to Saskatoon and Edmonton from Regina. The total route is 1,600 miles.

It was on the inaugural flight that the De Havilland 61, with Bristol Jupiter engine, made a forced landing near Calgary owing to fuel trouble, failed to take off properly and caught fire when Pilot Buchanan had to dodge a crowd of sightseers before setting her down. The machine was totally destroyed, the pilot and four passengers escaping unhurt. This unfortunate start naturally checked the potential rush of passengers when the service was immediately continued with a Fokker Super-universal (Pratt and Whitney Wasp engine).

The incident is rather crushing to those who had hoped to see more British machines and engines used in Canada. H. L. Brintnell, operating manager of the Airways, praised the performance of the D.H.-Bristol combination but was not so complimentary about its economy. It seems that the Fokker products have stood out admirably, both in flying qualities and ease of maintenance, under the most strenuous conditions.

Incidentally, Canadian Vickers, Ltd., of Montreal, with a directorate closely interwoven with that of Western Canadian Airways, has obtained Canadian manufacturing rights for Fokker machines. A new F7 plane of this make is expected from Amsterdam early this month which will be equipped with three Wright Whirlwinds and put on the new route. Four new Super-Universals have also been ordered. The latter type is recording an average ground speed of 110 m.p.h. on the regular service.

The P. and W. Wasp also comes in for the heartiest praise, both from the Airways and from Canadian Aerial Minerals Exploration Company. The latter company is also overhauling for work on skis at present, Capt. H. A. Oaks having gone to Toronto in connection with the programme.

One pilot obtained more than 200 hours' continuous service from his Wasp without other attention than tappet adjustments and minor matters, and it is found quite feasible to travel hundreds of miles from a base without any other mechanic than the pilot. This is current gossip, but quite significant from men who operate aircraft on a commercial basis under most severe conditions

Among general passenger work done must be included a spirited but vain effort to save the lives of two badly burned victims of a train wreck by a Western Canada Airways pilot. A. H. Westergard landed a Fairchild cabin monoplane close to the scene, bringing Engineer A. M. Harmon and Fireman Jack Clayton back to Winnipeg General Hospital with admirable dispatch. Even this gain of an hour was, unfortunately, insufficient.

On the Pacific coast the machines of the Western Canada Airways, consisting of two Boeing-Wasp boats, one H-boat and one Vickers Vedette, have discontinued the season's fishery patrol and are employed on general work out of Vancouver.

The flying clubs continue to do good work, but before outlining it we shall indulge a morbid tendency to get over the set-backs first. A regrettable incident on Nov. 4 threatened the supremacy of the Winnipeg Flying Club in flying-hours per machine when they had over 800 hours in five months with two Moths and had broken one undercarriage as their only serious damage.

On this day four more students had already passed for pilot's licenses and two more were well on the way until they disputed possession of the same landing-tee,—on a "Moth-to-Moth-and-let-the-best-man-win" basis. Nobody knows who won, but the Club lost to the extent of five wings and other oddments. Fortunately KU is nearly ready to take off, KB is taking an overdue complete overhaul, and an Avian has been bought from Western Canada Airways. Nobody was hurt.

The Moose Jaw Club lost a hangar and one Moth by fire, and somewhat serious damage to engines has been caused at both Regina and Saskatoon by broken connecting-rods. Theories are various, and probably all true.

Otherwise the story is encouraging. Without definite figures from Edmonton, Moose Jaw or Victoria we have word of 64 soloists in the other four clubs. Of these Winnipeg has 38, Regina 12, Moose Jaw and Saskatoon seven each. The situation with regard to licenses is rather obscure as Capt. G. S. Abbott is even now conducting flight tests and theoretical examinations in this territory.

A most successful opening was held recently by the Calgary Club. After many set-backs this body of enthusiasts, whose president is Capt. F. R. McCall, D.S.O., M.C., D.F.C., got in motion towards Autumn and held an aerial exhibition before a large crowd of citizens. Mrs. McCall baptised the two Moths and the club instructor. Lieut. W. L. Rutledge, A.F.C., M.M., demonstrated the air qualities of the type. Capt. "Wop" May flew a Moth down from the Edmonton club, 185 miles north. The difficulties of social amenities as between clubs in Western Canada can be realised when it is understood that all the rest were too far away to send a machine.

Cross-country flying was becoming very popular with Winnipeg Club members until the sudden failure of the machine supply as related. An early recovery is anticipated, however, as ordinary winter flying here has everything but the temperature to recommend it; frequent cloudless bumpless days, and an infinity of land and water equally suitable for ski landings.—**Canuck.**

THE LATEST AIR WAR.

A boundary dispute between Bolivia and Paraguay has resulted in minor hostilities between troops of the two countries. Various border forts have been taken and lost and reports have been published announcing the participation of aircraft in the fighting.

Bolivia has a small air force equipped with modern machines but nothing is known of a possible Paraguayan Air Arm.

A report from *The Times* correspondent in New York states that several trainloads of war supplies, including four aeroplanes, passed through Santa Fé, Argentina, on Dec. 15 en route for Bolivia from a German ship. Three American aviators have offered to serve with the Bolivian forces.

CROYDON NOTES.

Said the Editor, carelessly swinging a gold-knobbed cane in a well-gloved hand (by Dent) and preparing for a frugal lunch of caviare, peaches and Pommery, "Let there be notes,—er—*Croydon* notes." With death in his heart, the subordinate sprang to the salute, transferring a blob of printer's ink from the forefinger of the right hand to the

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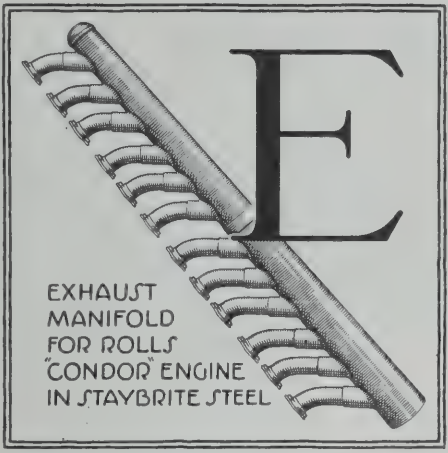

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lobe of the corresponding ear, took a seedy cloth cap (by Dunn) from the peg and shambled off through the fog to Croydon.

Like Old Man River, the inhabitants of the Aerodrome must know somethin' but they dont say nuffin' on these occasions. In effect our correspondent found no news at all, which was exactly what he had confidently expected from the first.

Wandering onto the once bright and busy tarmac, he found it occupied by three depressed plovers who, finding it uncomfortably damp, stood first on one leg and then on the other. On the control tower, the eagle-eyed gentleman with the binoculars had been withdrawn, and upon the rail sat a dissolute-looking crow who croaked derisively at Commercial Aviation in general from that vantage point.

Suddenly our correspondent's heart missed a beat (gold-flake) for he had caught a glimpse of something flying low through the fog with navigation lights full on. Tensely he waited, moistening an indelible pencil with a trembling tongue. It loomed nearer. What could it be? The Autogiro? the Pterodactyl? It seemed to fly like both of them.

Steadily it approached, and as it executed a climbing turn over the watchful crow upon the control tower, the Representative of The Aeroplane turned away towards the Aerodrome Hotel with a stifled oath of bitter disappointment. It was an owl which had mistaken day for night.

Now, this is a fair and unbiassed account of what Croydon was like from the point of view of a collector of news items on Tuesday last, the 18th of December, exactly one week before Christmas Day.

On the Tuesday in question, an Imperial Airways and a Sabena machine flew in as far as Lympne, otherwise there was no movement, and on Wednesday, the services were resumed as usual.—X.

MR. CATES' ACCIDENT.

His many friends among the old hands in aviation will regret very much to hear that Mr. John Cates, formerly of Shell-Mex Ltd., collided with a motor 'bus on Nov. 24 and was taken to Whipp's Cross Hospital with various fractures and wounds. By the time these notes appear he will be back at his own address at 14, Harold Road, Hornsey, N.8, and, as he is likely to be an invalid for weeks, one feels sure that he will be pleased to hear from his old friends in aviation.

Mr. Cates was the first person concerned in the Oil Industry to be definitely appointed to look after aviation spirit. He undoubtedly laid the foundation of the enormous business which the Shell Company now does in aviation spirit all over the World.

He retired from the firm some years ago owing to ill-health, which is not surprising considering that he served the firm all over the World, including the most unhealthy climates, where oil-wells exist. In leaving he carried with him the good will of all his Directors, and is still in touch with most of the pioneers of aviation. All will wish him an early and complete recovery.

PERSONAL NOTICES.

Marriages.

BERLYN—ROBERTS.—The marriage arranged between Martin John Berlyn, B.A., R.A.F., A.F.R.Ae.S., of 8, University Court, Montreal, third son of Dr. J. A. and Mrs. Berlyn, of Edgbaston, and Kathleen Mary, younger daughter of Mrs. Alice M. Roberts, of Blackgrove, Lingfield, Surrey, took place on Dec. 19 at the Church of St. James the Apostle, Montreal, Canada.

GREEN—HENNESSY.—At the Roman Catholic Church, Belford, Flg. Off. George Douglas Green, R.A.F., son of Mrs. M. D. Green, of 5, Elm Park Road, Chelsea, S.W.3, to Miss Dorothy Mary Hennessy, daughter of Mrs. K. Hennessy, of Keystone, Huntingdonshire.

Birth.

CHAMPION DE CRESPIGNY.—On Dec. 17, at Fovant Rectory, Salisbury, to Sylvia, wife of Sq. Ldr. H. V. Champion de Crespigny, R.A.F.—a son (Hugh Philip).

[This being the last issue of 1928, one fills this last bit of space by wishing all readers of the paper a Happy New Year.—C. G. G.]

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A business man with thirteen years' experience as a pilot, about 2,000 hours' flying, sixty different types of machine and first-class experience of testing, also photography, now holding both "A" and "B" Licences; is seeking an engagement at home or abroad where his services would be of use in the 1929 "Aviation Boom."

He has good experience of selling aeroplanes abroad and a sound and comprehensive general business knowledge, including works and sales organisation. Until recently held an appointment as Aeronautical Advisor to a foreign Government. He is a real worker and can offer first-class testimonials. Will those interested please write to Box No. 5590, The Aeroplane? All letters treated in strictest confidence.

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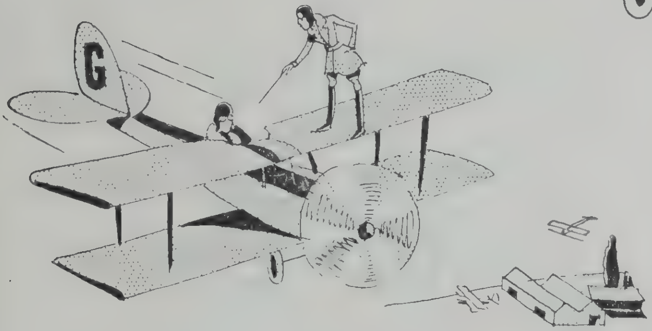
Christmas Carols

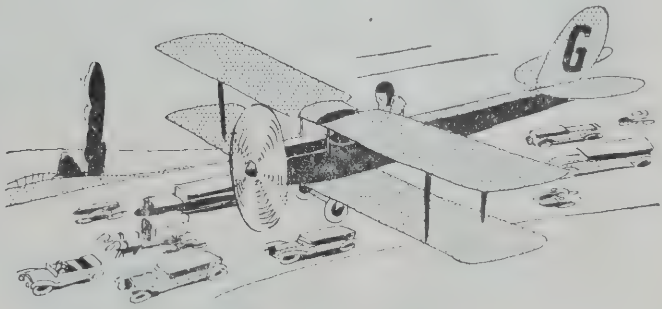
(new style)

Noel Mainwaring looked out
On the feast of Stephen,
When the cars lay round about
Straggling and uneven.
"One thing's very sure," said he,
"Traffic's far too trying;
I will hie me off to see
Where I can learn fly-y-ing."

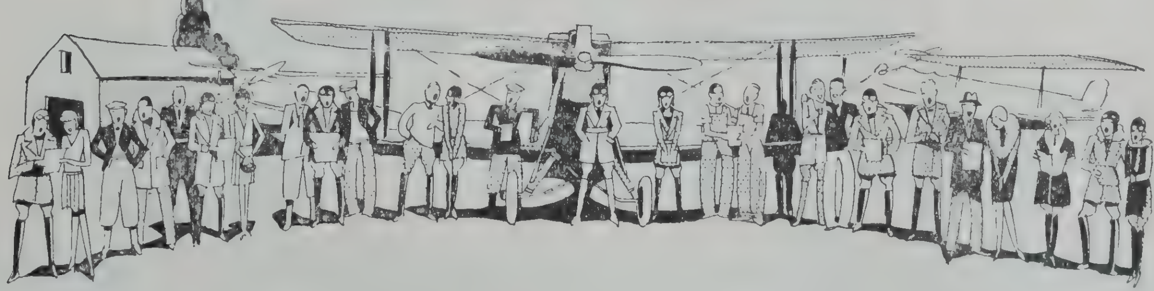
"Du-al, du-al,"
The Instructor did say,
"Ten hours on a Moth
Will bring your Pilot's 'A.'"



Whilst motors boiled themselves bone dry,
All waiting on the ground,
Young Noel Moth-ed his way on high
With space and views all round.



Hark, the happy Moth-ers sing,
Nowadays a Moth's the thing,
On the road you can't do forty
Without being told it's naughty.
Any Gipsy Moth will do
Something over one-0-two,
Threepence ha'penny every mile
Covers costs for two in style.
Hark, the happy Moth-ers sing,
Come and join us on the wing.



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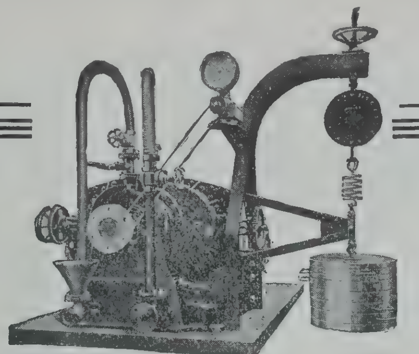

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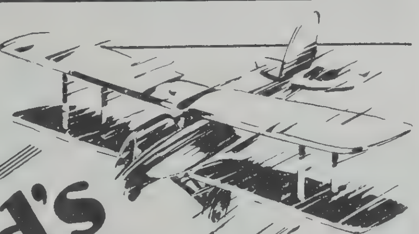

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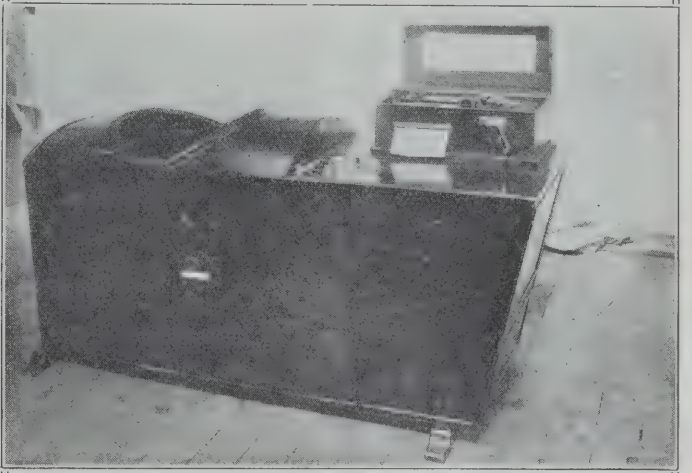

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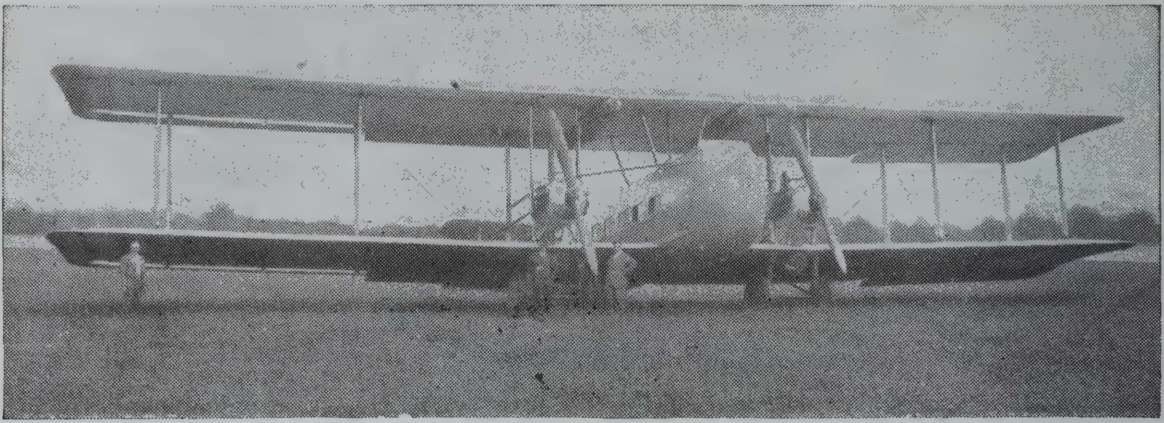

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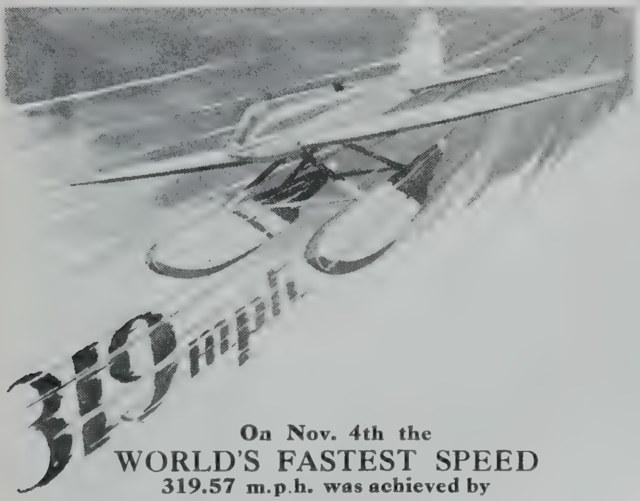

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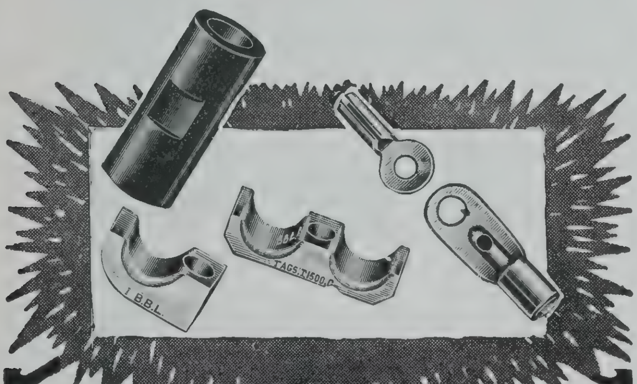

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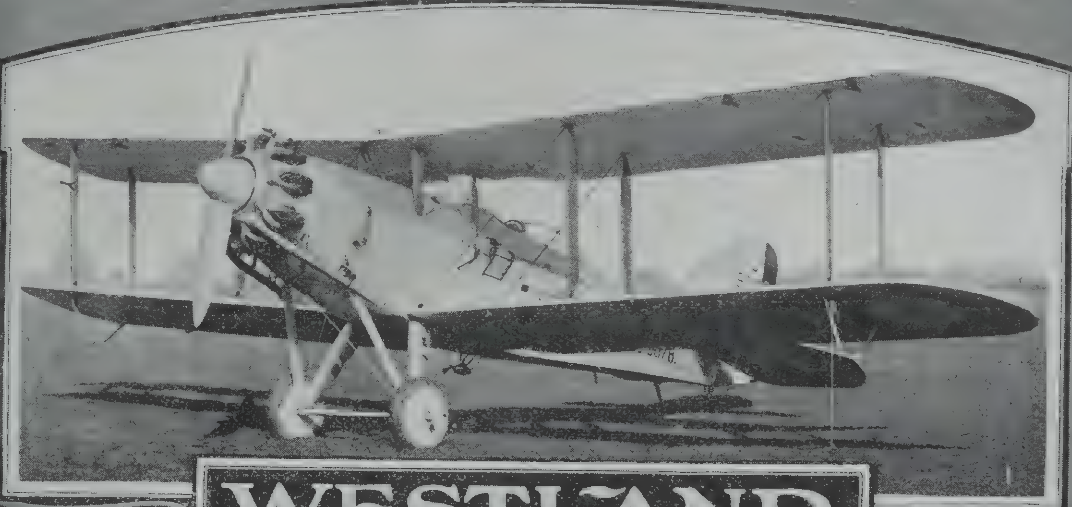

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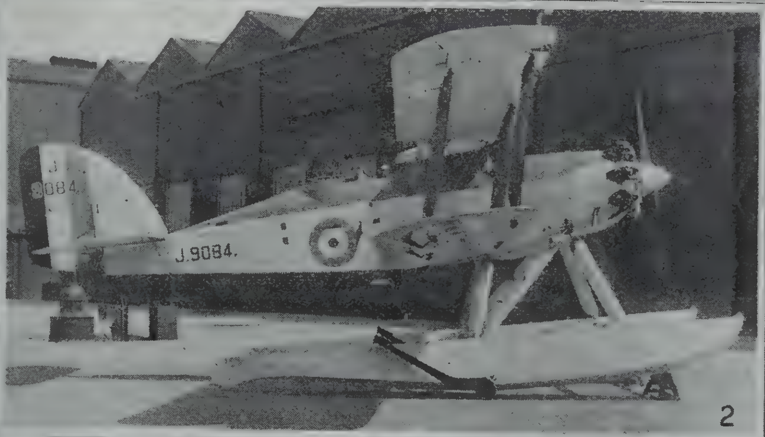

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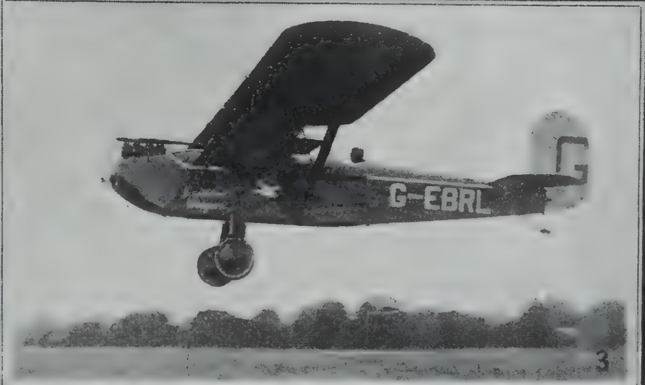

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